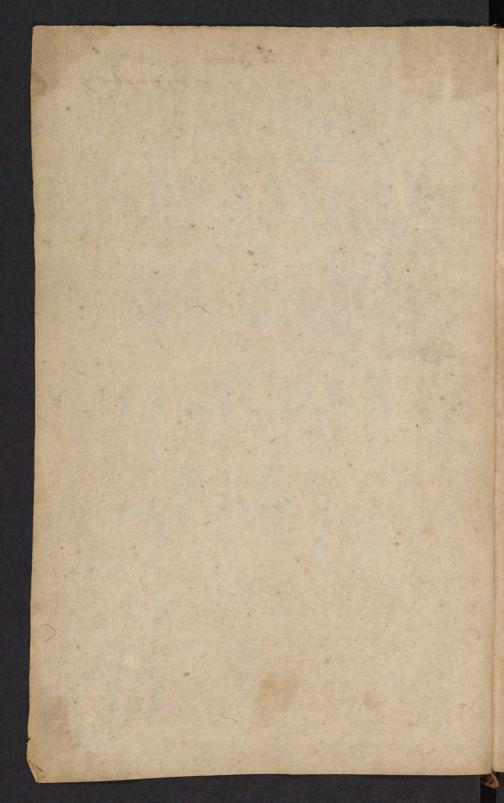
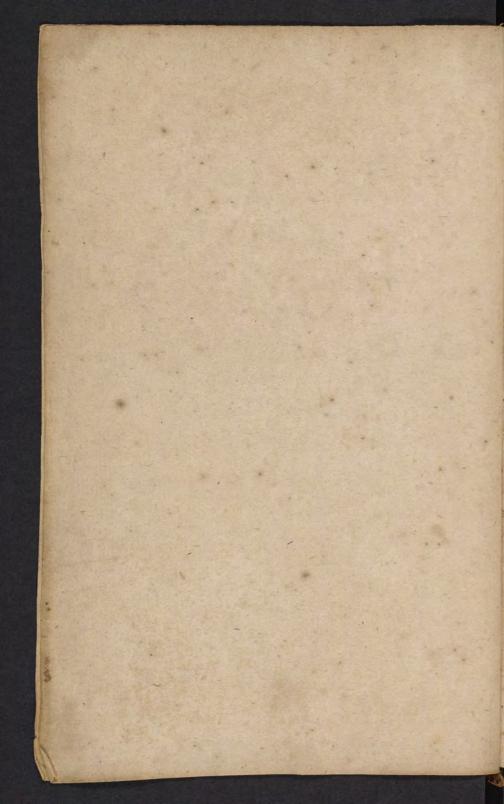
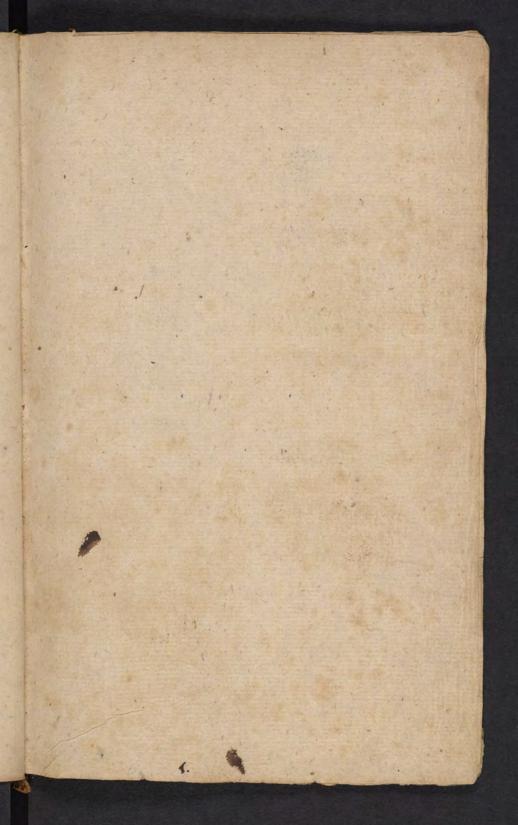


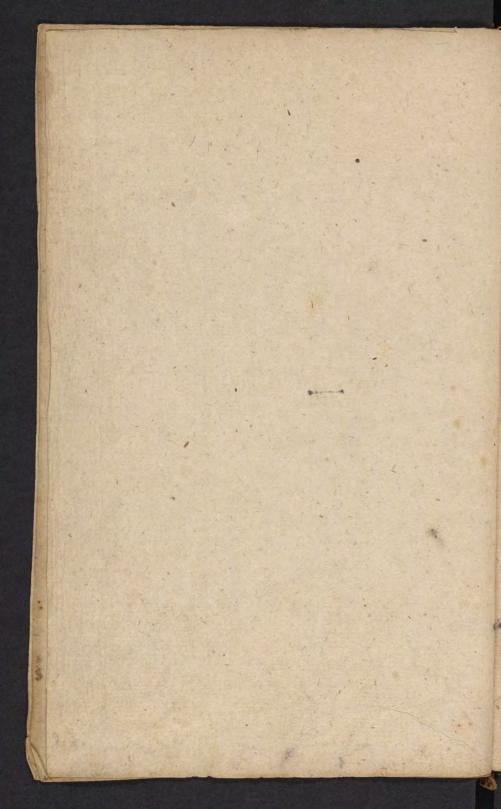
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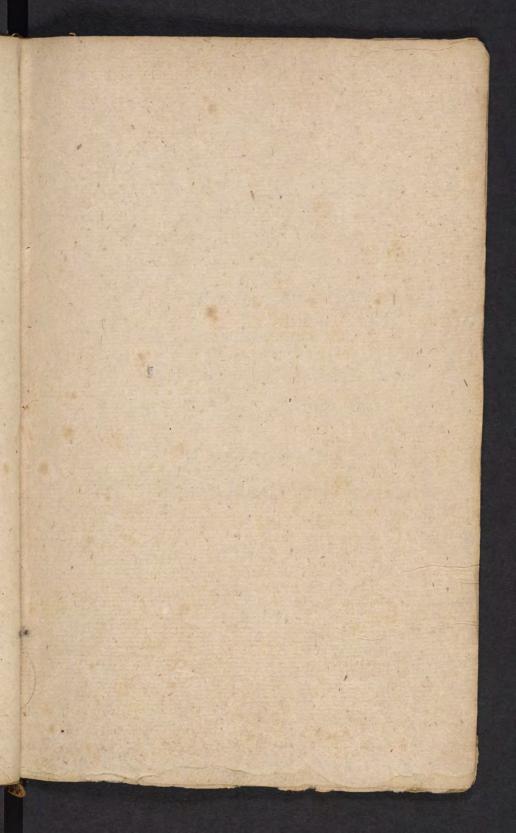


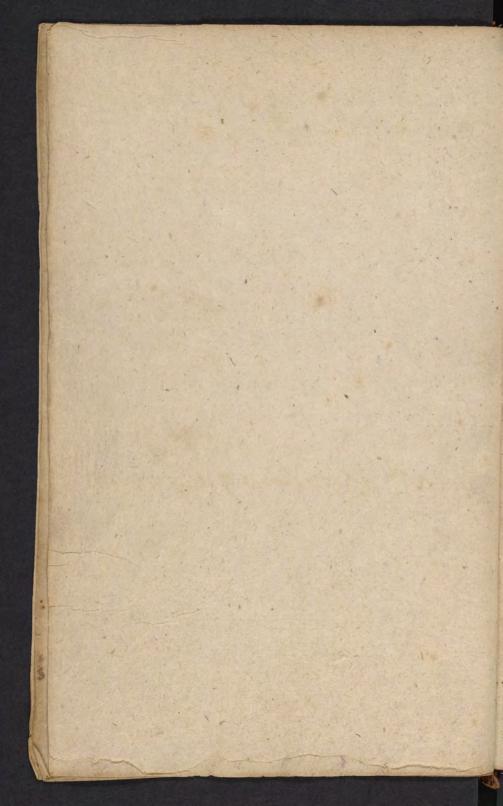




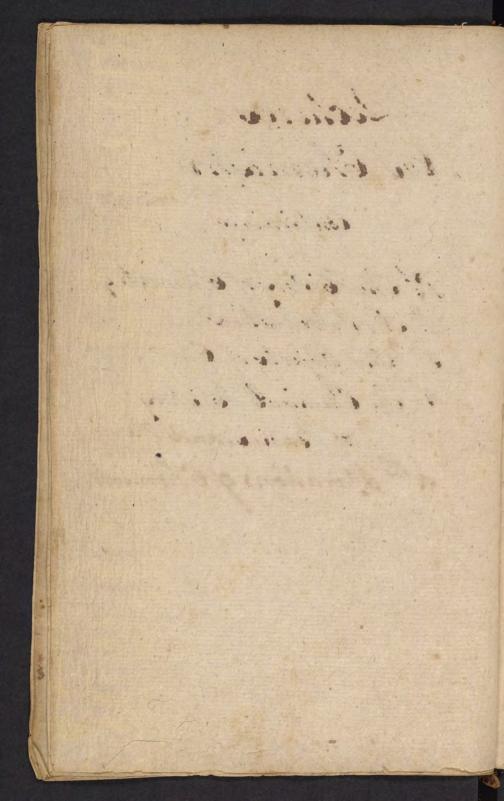


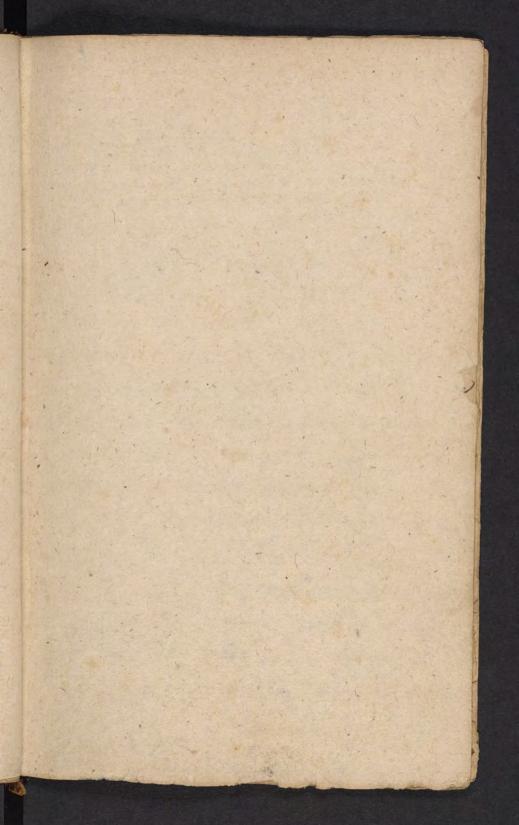


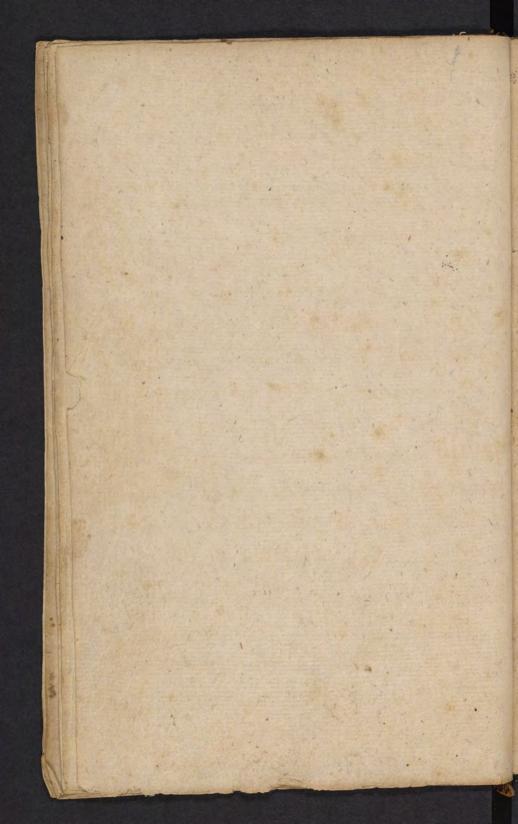




Lectures On Chemistry Containing 1. The History of Chemistry 2? An Introduction 3. The Objects of Chemistry 4 The Chemical History of Bodies, and the 5th Operations of Chemistry







History of Chrimistry. Chemistry, adording to the modern acceptation of the word, is a very useful & estensive branch of notheral philosophy. The first author with whom this word is found is Thetarch who lived undet the Comperors Domitian Nerval & Trajan. Quarding to him Me word vignifies black . Others will have it Toriginally sends veered or occult & derive if from the Hebrew Chaman or Haman, to hide. The first hime the word Chemia or chamistry occurs as denoting the art we are speaking of is in a greek manuscript of Zorishus the Inopolitan preserved inthis King's library at Caris. This Lowers lived under the younger Theodofies about 400 years after the christian ara, or flegioning of the fifth Gentury.

* Genesis IV. 22

* Genusis 9, 20,21.

John the stimology of the word we Inoceed to the history of the veience itself. Some from alalse opinion that our breneration for lang art ought to be proportioned to its fortiguility, have attempted to prove it to be very ancient. vome have gone vo far as lo fretend it was known event to the antidelevians. & it is apparent from holy wit that Tubal : Cain the 6 th in percent from Hoam was "and instructor of every artifuir "in brafs & aron." now at the afsering & wothing of metals is a branches of chemistry it is evident that every on those farty ages they had vom moulege of this art . again immediately often the flood we find Soal made wind & was thereby intopicated which is also a chomical process. Obest these instances in no wise prove that these people has any knowless of chamistry

* This Hims is vaid to have founded the afryrian Empire 420 years before the liveding of Rompo.

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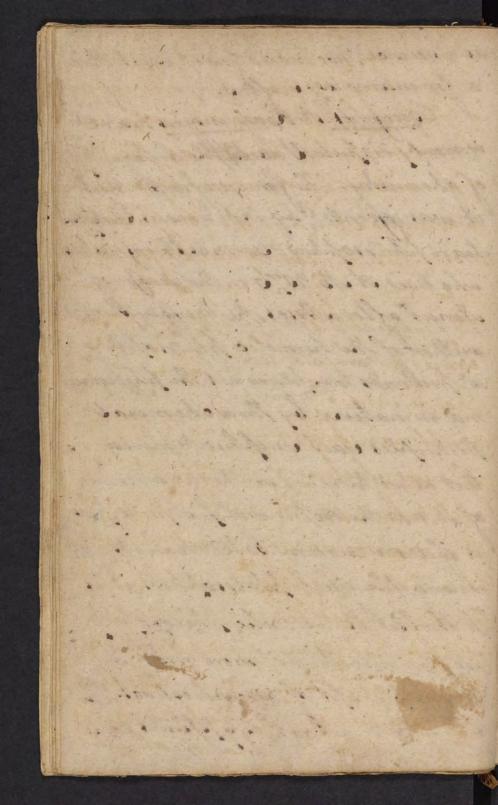
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as a veience, nor indeed did it exist then or for many ages after. Borgerius & Romingius have warmly disputed about the antiquity of chemistry The former afserts that it was infrented by Mulamous Egyp: tran philosopher Spermes Trimpigestus who lived A. Mb. 2076 in the reight of Sinus after Moses, he being aubunter author of the hormeted philosophry w. prebends to explain all the phepromet na in nature by thruchemual principles walt emphur & murcung x. but as we have no authentic evidence of it, & as the doctrine of first principles is of more modern date, bloch its rise almong the greek philosophers, it is probable the hirmetic Whilosophy was an invention of more modern date, & purhaft of grecian extract. The Cophtics or anticht egyptians were



remarkable for their learning & moulige in particular arts, especially embalming, w. They carried to the greatest projection of any heaple in the world, as their mymmies which for many ager rem? encorrupted & uningited of friently move. as their educator was wo feetale as to be esteemed the granery of the world they were consequently right byo puland, carried on an extensive have with the Proenicians, Tyrians blyreeks, and no sould were beguained with the arts of manufacturing metals, and other entstakces for domestie use & omamunt, as well as communed & grandeur. of renown'd were they for Genning in the Days of moses that it's vaid to his praise that he was learn'd in all the wisdom of the Egyptians . and that they were well philled in metablerray is further evident the formation of the

the file was not not by the server in free marked and a special in the soft of the same of the her was to be * The celebrated German chemist I State has wrate a curious treatise entitled Devitule aureo in which he supposes moves made use of The part Sulphuris as a volvert to unter the golden call voluble in water; a medium vaid to ble the discovery of modern chemistr. carried on an each week Transmines Times blendings brutt mer frequest frais to the of money bearing on the section on wholes for my which many me were the second of their se course were has for the more of the the second state service to a second fine the more of more or many extern of he to a with heal in probabilion The state of the s It be within the the

galder call by staron, but particularly the destrojing it by Moses in so nice a manner of to render it misceable with water, a process very curious & discovers great while in effernistry, & w. he could only liver among the Egyptians where by has lived. / But fow leveths landing all the learning opulence & vegacity of In Egyptians, They appear to have but atterty ignorable of chemistry as a ecience Let us next look among the Greeks. This nation being frequently up der the necessity of resisting to Carthe in honis of consety theirig etruft with veryme at this peenty, goandeur, ingenisty, & civil polity, became applications of imitating them, & being themselves ignorant transported among other things The arts vociences of Earl of into Mehin

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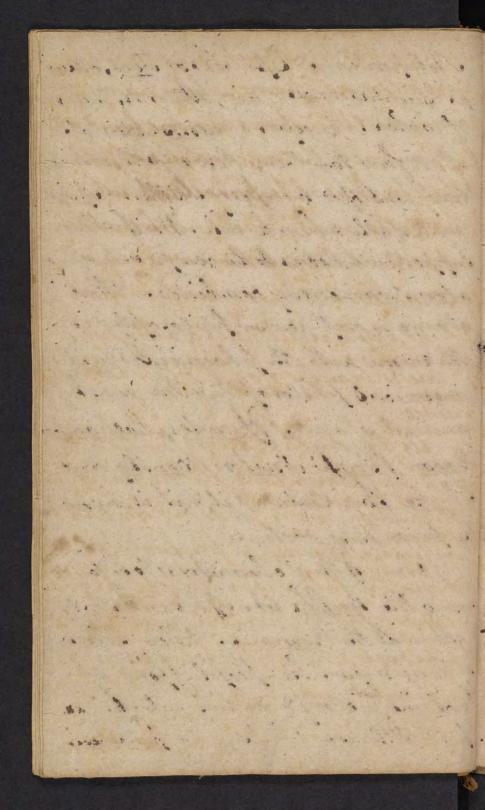
the regard for the transition of the x The Egyptians in the time of Moses likewiff homeplanted colonies into Grace & founded the 12 villages of Attica of al was composed they King orten of Athens renouned for it number of eloquent orators and philosophers about the transfer of the second of the a series of the series of the line of the series of the se Limited the state of the state and the second of the second o of their personal personal second and the first of the first of the second in the second of the second of the second Complete the second

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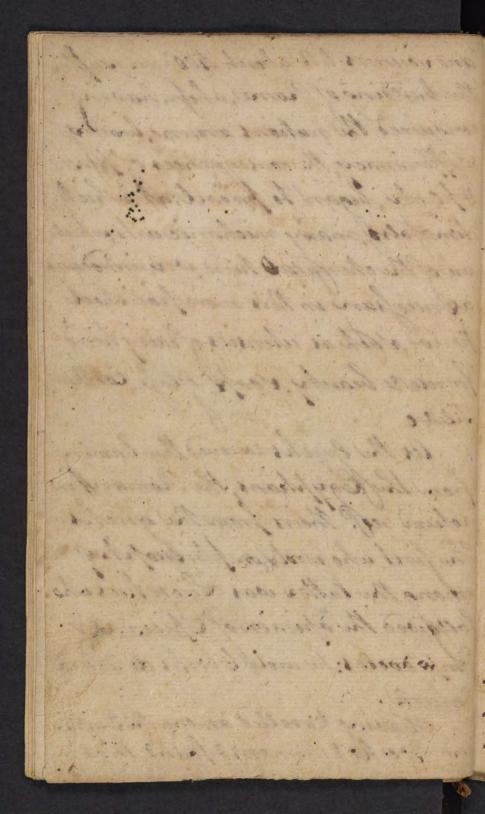
nature country, & afterwards greatly improved them, by their out afriduity, particularly the polite arts as logic, whitorice poetry, ethics &: hiff as the Egypteans had no vicentific knowlege of chemistry, vo neither so we find that the Greeks over madel any improvements thousa. Most of the greek philosophers choosing rather To indulge their liquinant fancies in speculative refinements and mie open theories, than webmit to the toil speoplesity of facto and experiments. Wor is it to be at att wondered at, that, ever in matters of expeculation to w. They were vo much addicted, they so greatly disagreed vine they differed in venton! las to what was the first principles of what bodies arles of poved; vomp as

in the still the wife with the safering portedent to following loge before floor of son in his a color depend of your as son friends to Post on standing ou ly way a po find the Break some someth ward the property of the same is the self-as Market friends from the said from the wind in a second to the second of April free to the house of the way out the a francisco si de la companya free of soil hit would be of affections in the wind of the formation and the state of the state of the state of a metaline the stay on use of a not adjusted they ever war and the same with the same of the same and the said has been to be the A fless of the flesh of the

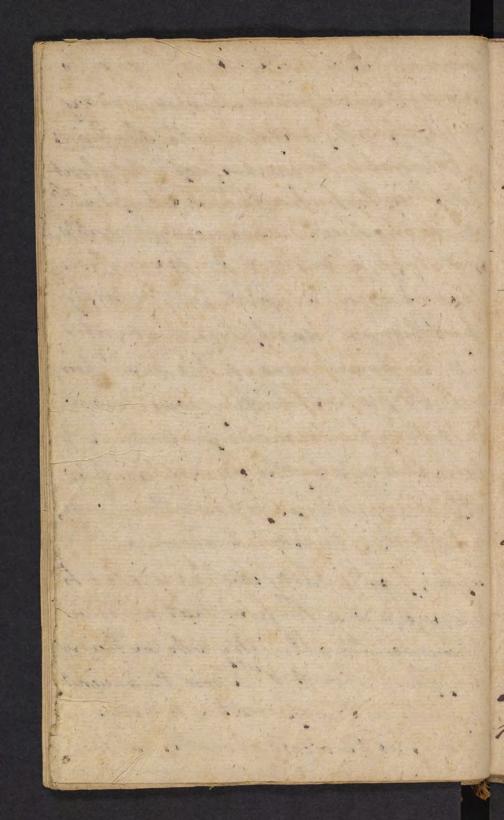
Metaportinus & Ephesius of Tird, others as Lampsacenus of air, others as Thales of water. Vereclives of earth. aristotle of all four together, whose eye tem has Obeen embraced by many Others of first water, hile & black beld. Whilf others suppose all bries to be composed of atoms variously combined. This atomie or corpuscular philosophy is The vame with the phoenical and movaicas philosophy, & the most ancient of any. Obscartes, Malbranche Bacon, Boyle, Newton Bently and Clarke flave embraced it, & it is now the privailing ochrine Since of Man of chemistry is to be found among the Greph's letuspals into Italy & spannighthe Promans. They being a fiere & warlike people fond of nothing victory & martial entertrices, paid little regard to the more police asts



and veiences, till about 400 years after the building of Rome, when, having conquered the nations around, liveling & efferinacy, the consequences of place & plenty began to pressel; of which temilalso many mechanic arts which and of the cherfical hind, were introduced as nuclsary in this more polished period, such as utensils of every hind for use & beauty, doald, Glass, Corthan, as the Greeks acceived thinlaming from the Cayptians, the Romand in return ref theirs from the greeks. The first who wrote on philosophry ashong the latter was Lucretus who followed the opinion of Epicerus & Confedocles; he wolf b books de resund natura. Having travelled among the Egypti:



chemistry as and antwas unknown to them flet us once more take a fourney into Afria & page among the Arabians an ignorant & barbarouf people till about the 6" century when having Caypt, with from the reprartable enjouggement & patronage of learning by the vuccessors to Alebaster the affect, particularly by Holerny Chiladelphus, who convited all the famed men of his lime to him & collected a vart liblary, was row become very renowned for learning & being vuldgeed by the Sanacens in 6 40 the Greek writings fell into thin hands, which they trapslated & commented upon, particularly such as related to physic, & were the first that introduces Sharmaceutic chemistry into medicine as appears evident 1. From the ancient chymists in Europe reciting to Geber & Otheres as the oldest chemists, had there



been any before them they doubtlefor would have known it, especially among the Greeks. 2. Troom their being the fifet that introduced any outstance chemially prepared finto medicion. 3. Trom their discovery of new bodies as Notre, and It's Trom their writings themselves in which many chemidal processes an fairly described. Before be proceed any further it will the proper for us to divide chemistry into three parts addring as they took their rise at different liones, way Alchemy, medical or pharmaceutic and philosophie chamistry Of Alchemistry By this we would be understood That occupt veience as its generally termed iv. pretends to transmule metals. Then and many books wood upon it, some meterfed to be the works of the ancient

La human mind neglected insultivated before fixed, wink into the most produce, during ignorance. Europe ded not produce, during four centuries, one author who merits to be read, either on account of the elegance of his compositions, or the just he for and rovelty of his vertinosents.

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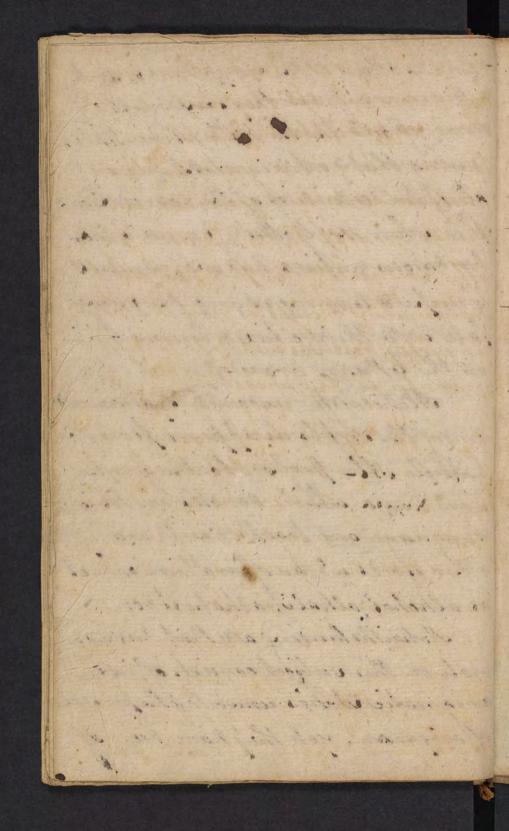
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Greeks other of the Egyptians, but it is very evident they were mostly wrote about the 12 13. " 11: centines during that dark & ignorably period after the declaration of the roman om: pire when the Goths & bendals, those barbarous nations, had overrun all Cerrope & learning whomed the vame fate with their eities & became buried in the lethean grove Alchemisty undoubtedly or amated among the Apple as appears from the particle At prefixed to the greek word Xupia which senotes fin this language our together with many other foods w anof arabian estreet as alkohol alkalif, alkahest &c. Notwiths tanding all that has been wrote on this vulget consists of idle anignatic stories unworthy the perioral of any man yet they have been of



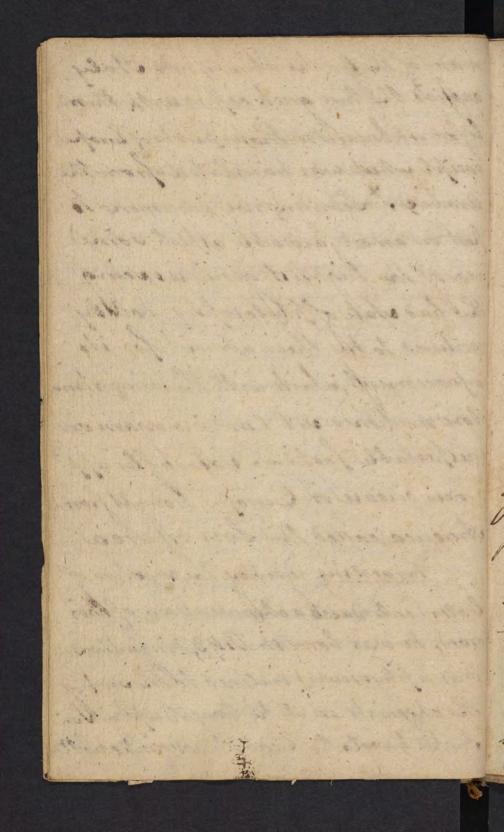
vervice to chemistry, for others vainly endeavoring to exicover the philosophers stone vo peletrated by the alchemists for converting other metals into Gold have accordantally discovered manyother things greatly to the advantage of this beience. The pretence at of transmuting metals is now treated as it justly beserves with contempt & redicule by the wisest of men. Tharmaceutic chemistry Let us now proceed to the history of pharmacy & the Discoveries & norpresen: that have been made therein. after the discoveries of medicines every thing was orouded into the Material medica without any order or regularity & was greatly encreased by the scholars of Hippocrates & in The vehool of Alexandria. Some

Account to the second of th the commentered segretal representations of Correction Courses of the opening on the there's matel late arranged Jean with the said with himselvery or election or his his him . in they see were the resident of the Est weeter by the windle of a species Marine Showing 1 a Straig on from a the the miles good many to the histories which the 4 the self of board and property of after the disease with a distance 1 with about the was a rear great the 2 repetered in the sea production of war I or contact to was a rate a making by the concentration of the second for the action of all and a second of the

of their compositions the adisgrace to medicine have ever vince freen retained as the Theriaca, mithridately: for more of which see Soribonius Largus. Galen & the later Greek & forman physicians being ignorant of chemit Mamacy continues the vaine tito about the 12 "century when Phases introduced Buchemical proparation of medicines & the Galeric pharmacy the gan to decline & the bulk of formula to be lessered by extractible the active principles of medicines instead of wing the wholes in outstance In 1453 Contantinople was taken by the Terris. One would reasonably think having must have vuffered thereby, but it spoud on the contrary a happymans of diffusing it in a remarkable manner And all the western parts of Europe, for

. I Towards the beginning of the 12. century we discered the first orgoff towns of Muhimonan mind awahening from that lettergy in w. it had long been work, & observed fit turning with curricy & attention towards the fil. twation of atorature & science Ital first efforts however were extremely ill directed. The powers of imagination attan some defree of vigour fefore the intellectual fauthies dre fruch aperised in speinlation or abstract disquisition. Men are poch before they and philosophers. They feel with "vensibility & describe with force when they have made but little progress in investigation or reasoning. The age of Former & of The vio long precepted that of Thates or of Socrater. But unhappily for literaline our ances toro seviating from this course w. natural hoints ould plunged at one into the depth of abstruse & metaphyvical enquiry, & waster wailing at they were difficult.

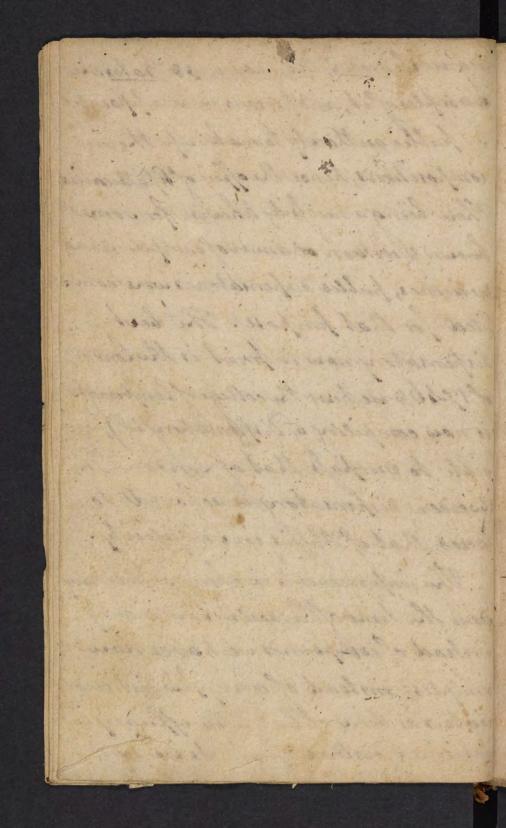
many of the Greeks retining into Italy capiels the the greek copies with them, before continouth in those parts of Emope, except what was translated from the arabic. Learning now beginning to put on amore favorable affect, some men of the brightest geniuses, very the bad state of pholosophy, boldby ventured to they their utmost for its infrovement, which will the corcumstance above mentioned wet learning again on a respectable footing. Vafor la fter app? anew disease in Europe, brought from America called the Lues reprire a Garacelsus rejecting the expoten of W. W Galen introduced a chemical on of this own, he was born in 1293, his father was aphyoinan inclined to the vect of the chepoists in w. he brought up histon In his travels his became arguanted with



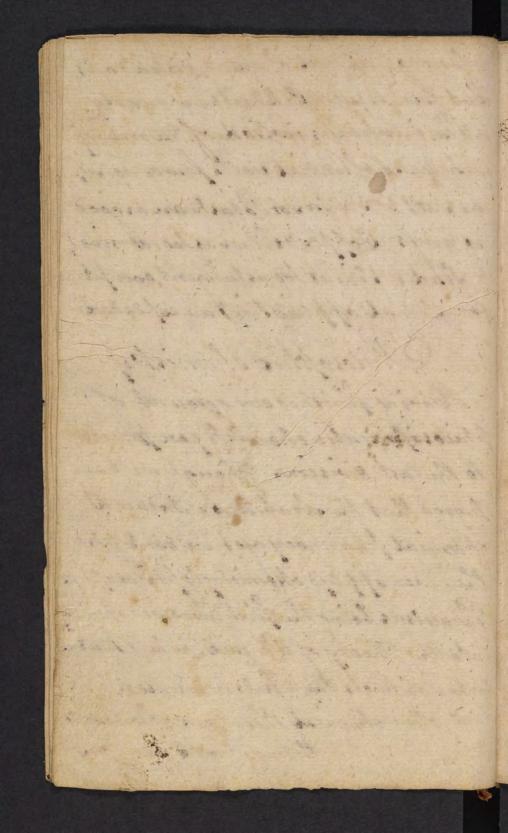
Opium Antimony & Mercury, with ash he vet out to practice & was made vome lime after professor at Basil in which he did not long continue, being voon obliged to quit it . Oftenbards offending the magistrales he was barnshed devitter: · land, and, after travelling up & down for some time, he died in 1543. He wrote on Alchemy Valmistry & magic. The chemistr or followers of Paracel sus were opposed by the Galeniste; the taken continuing for 1300 years tell the time of brato who writed the chemical and galenical pharmacy together, and in that state it has respined ever unce. The Galeniste on England sidnot embrau the chemical theory of physic, tell about The latter end of aflikers time. Thambary about the latter end of last century was corried to aneportant

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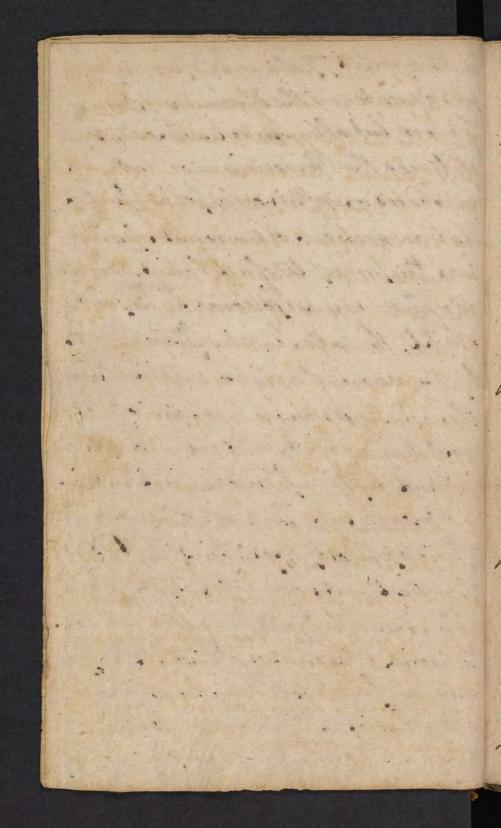
degre Schroder, S. Ludovicus & Bates one toamples of it, and persons were appointed by public authorsby to make up their compositions, hence the office of Rhotheraries. Then being a necessity likewise for some known Woortand or amer of compounding medicines, public dispentatories were como : hiled for that purpose. The best Dispensatory now in print is the London of 1746 & we hear the college of toinburgh is now compiling a Displantatory if poliwith to eurpass that of Lapton the Vweeden Dispensatory lis rechaned to exceed that of Pafis in vimplicity. The insprovements in chemial pharmacy von the home of Paracelous and many; mstead of compounds we have now simples: instead of many few distilled waters as being of but little efficiery in medicines instead of extracts we have



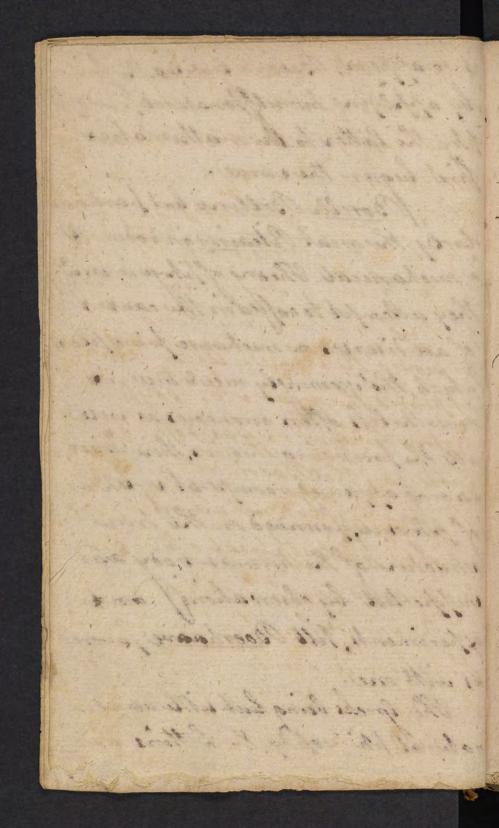
infusions; instead of many distilled oils but few, as all dillill oils an nearly. allho in virtue; instead of the many vegetable essential valts few or none, as valt of Tartar or botash an as good as amf: Copper voliver as too catosive, & Lepd & Tim as too astringent, ence ft for external applications are explored Thilosophus chemistry Having finished our account of phidosophicutic chemistry we proced to the last division. Though we have proved that the Arabian introduced chemical pharmacy yet we sont find they ever apply a exemity to philosophy. foracelsus being the first introduced chimity into the Theory of Thyvie, he held that a tartar obstructs therefrels in diseases. another chemical theory was afterwards introduced by tan Helmont who was born



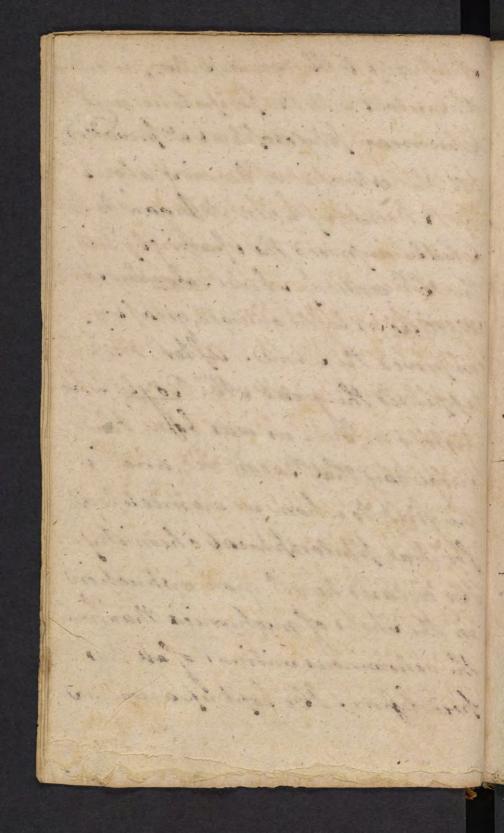
in the year 197 of a wolle family and was foucated in the Galenie rystem of physice but afternoons leaving that he embraced the Caracelian, or rather he introduced on of his own for he afserted that an archous or universal whint was the principle of all bodies, he was in vond measure followed by Mepfer & tabl, the latter calling the archeus by the name of anisha medica. From these instantes we ver how some of the most learned & judicious mes have been mislead by there false chemical thrones. Descarte & also founded a theory of phyce &philosophy w. being enthely Theoretical was voon after exploded & is now never mentioned but with riducale; he ascribed the causes of siseases to effervescence fermentation be: rechoning and and alkalies as their origin Bull the time is now at hand when atree philosophy



is to appear; Bacon & Galileo, the former by applying himself bonatural philoso. : play the latter to the mathematics, first began the came. Borelli Bellini, but harhiw. larly the great Peterin introduced a michapical Theory of physic in w. They attempt to enflain the causes of all diseases on mechanic principles, Vuhich, the veeningly nier & true, is nevertheless often orroneous, as were all the preceeding theories, thownever having appeared a compleat vystem of physic, founded on the true vholeture of the human body and supported by observations and experiments, tell Boerhaare favored us with one. The Greeks being but little versed in natural philosoffy, the Lattins and

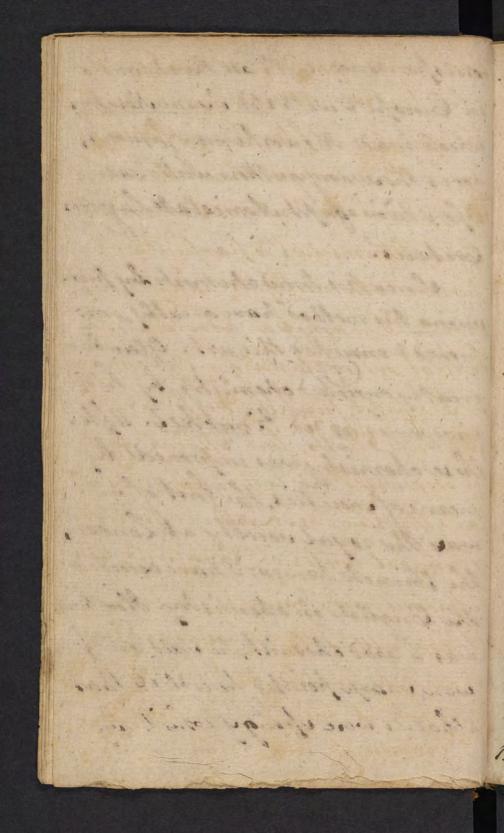


Anabians little exceeded them, contenting themselve's with the peripatelie and Chicircan philosophies w. prevaled till the restoration of learning about The 15 "century when it began to be a tille improved the vhathingly tell the 16 " century when Balon and Gallilas, as before observed, greatly improved the vame. after them appeared the great Mi Boyle who history inflowers us was befor the vargeday that Bacon deed, and is the fift to whom we are indetited for true philosophical chemistry. He declared hered more instruction in the whops of muchanies than from the voluminous writings of all this medefessors. He hept up a requiar



in Europe & with Vin Ivaac Newton which made his works more famous, nor is there ary authors worthreading before him agapt Agricola & Lazerus Creheus.

vuing his method have greatly in: proped & enriched this last. Glamber greatly enriched chemistry by his sicoveries as did Knightel. after These chemistry was improved by means of vacieties, the first of me was the royal society at London, the Thrench however have esceeded the English in chemistry. Homberg was a good chemist, he vaid aride werehard pointed kneedles & that alhalies were upongy which by



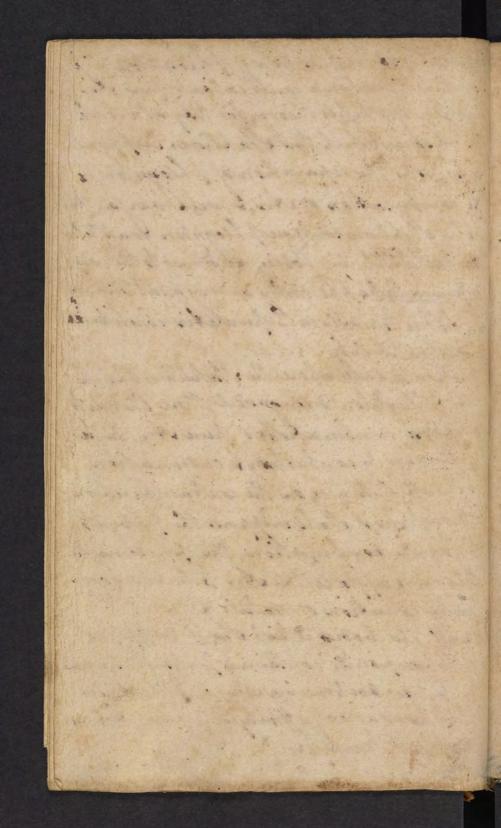
whathing the arids in their pores blunded their airimony & rendered them mild. after him appeared the two Lemeny's, then the Geoffsoy's with veneral others who apply themselves to particular parts of chemistry, as Rannew on Iron - Suhamet on negetation -Spellot on rattallungy . In Germany were estably funkter Hoffman 2 Gramer, & Cotts, but Margaraaft is accounted the lest; next to him and the Unceds. Lewis is the best chemical writer in England, but Macquer in France is the best of them all. The chemical works of basper Neumann translated by Lewis with notes is and excellent book, but Lewis's Commercium Milosophico technicum is till better.

A recently handle to be a second of the seco Constitute of the same distributed Marine Marine Andrews The End State State State State the second of the second of the second and the state of t commenced from months indicated The second of the second the way of the property of the best of Market March Street Street British Street The west of the state of the same of with the body land and the comments and the state of the state of the state of and freely and the state of the second estimate on a manger by the second May all . It showed no he lospe one wine it is come to become it i an willed make ber a wis to man James The is Course to some or in

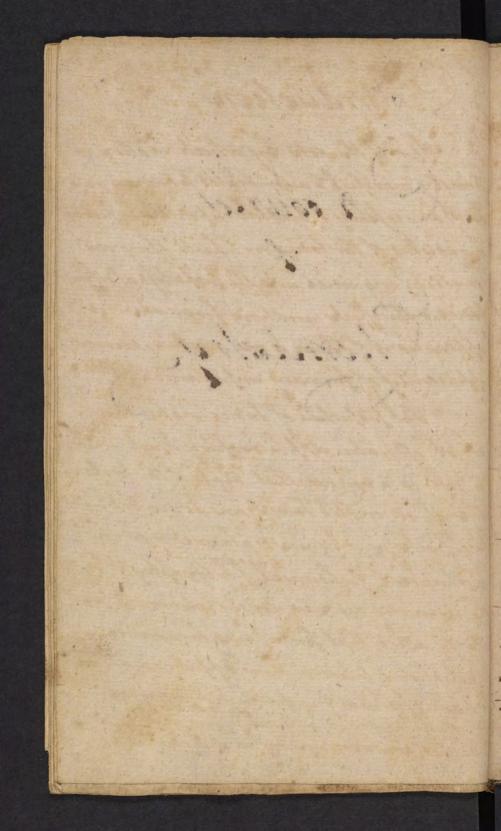
What was the author of a chemical theory which has been generally adopted by All Chamistreines his time until very lately. According to him an inflammable principle or what Recalls Phlogiston is the cause of most of the shoemomena produced by the Stablians suppose Suffhirs to be acompound formed of thes-- girton w the intriolie and which whay be Decomposed by separating there comforent parts; that metals are composed of aperticular Earth w phlogiston which are reduced to a calf by usparating the phlogiston from the Earth & gain restored to their metallie take by combining the phlogiston with the baly I dine the vinewery of the oifferent hinds of Air which spill staturally in the atmosphere w the on truck properties of pure Air a new theory has been adopted by vome Chemisto theothy the reverse of Stablis. There Chemish very the epistonce of phlogiston altogether. They afect that thered tis is the Principle which produces the chemicals changes in bodies & that all the phenomena which the Stablison exposed are owing to the

A STATE OF THE PARTY OF THE PAR The late of the same of the same of the The Manual town and the sound the said of The surprise of the same of the same of the same of the second of the second of the second A Maria Company of the Company of th the war of the second facility the second war and the state of the same of the same ment of a first property to be to be the state of you do not be not a such a facility of the said was no comment of the same of the same of the and the last the second second second second hand by comments of the house of their And the Samuel Samuel of the same to any other test that x vis etomeray's Chimistry wol 1 h. 102, 334, CAN THE RESIDENCE OF THE PARTY the second second second second second A Company of the State of the Company and and the second of the second

uparation brombination of phlogiston arife from the exparation or combination of pure this inversely of Stabli theory, for they attribute the Mange which the Stablians verppose arises from the separation of phlogiston to the combination of whir, & midverfa; thus 1 The Stabliam suppose phlogiston combitetes combustibility in bodies, decorning to the new orpneumatic Chemistry avery great tendency in bodies to renite with pureletir combitutes combin tibility. 2 In all cash where the Stabliam think the phlogiston disengaged, there Chemists support combinations of pure this take place as in combustion & calcination 3 in all instances, on the contrary, in which the overing of Stable exproses the phlogiston to form a combination, the presente theory supposes this Air to be vieryages. as the reduction of metals &: 4 All the boois which Stahl employer to be compound containing I hlogis tow, accord: to the new soctione are vimplete who tances which have agreed affinity with pure Dir, as duephow, metals in: X



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Introduction.

Diversely modified & accommodated to human uses, hand a necessary dependence afon the properties or qualities of the bodies on which they are exercised; enquiries into the properties of different bodies, & the effects resulting from various applications of them to one another, become affarentles of frimary importance."

The properties of bodies make the object of natural philosophry which may be selled "a visionce that before of the properties."

be reflect a vicence that hearts of the property the reflect are oreated badies, and his divided into two harder, mechanics, & chemistry, or the mechanical & chemistry or the mechanical & chemical philosophy, which the in many cases so closely intersover, & so nearly altice, that perhaps no hourdaries can be established between them, appear in athem to have effectives & important differences.

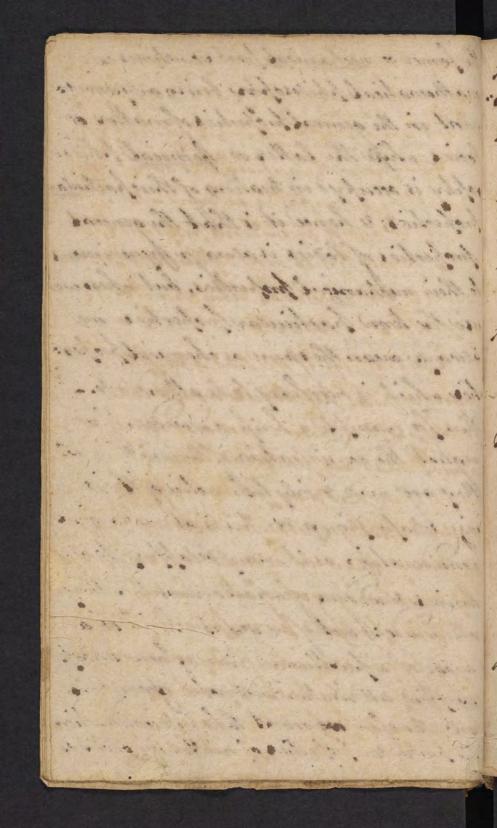
Lewis Commercian & in Introduction

Cherdue line the old the only wind the will will all himself institute the way is the is him in a among the wife morning to hing how about a provide of the legica or a legical from the Marie of the wife the wind of the second wies the effects weether proper was to more contains and will provolently I plant the forming in free free to at share or con a sector poly to a wine I want to the standard of the same to deliver a september of the property of the property of live of all months in his and and have been the in the second of the second second second Chipping of Secretary Julian & Description the state of the s and the state of t as the population of the constitution of the constitution of the same of the state of the state of the same of The state of the spirit in the second of the second

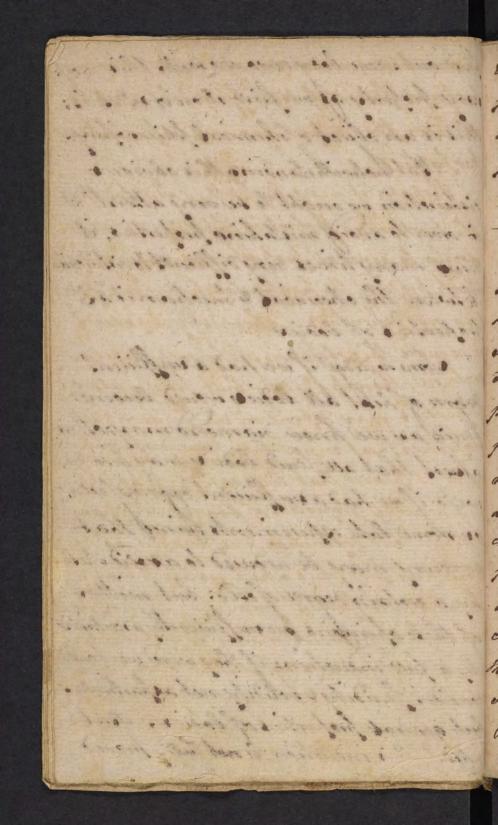
Chemistry therefore is properly a branch of natural philosophy, or, according to leginfors philosophy is the genus of which this is a operies. It may be refined to be that part of natural Ahilreaphy which treate of the particular properties of bodies, in contradictions to mechanice, which is that branch of national philosophy which treats of the General proporties of boices: I en adet then to ascertain the proper limiter of there two branches of vaience, it's necessary to distinguish between the general sparticular Influrties of bodies Buch, vine, figure, form, gravely, motion ve: helong to every hind of ofather and are therefore general properties The particular properties are those wet belong to certain bodies only, as the ductility of goed, hardness & frangibility of a diamond the clasticity of from to: Thromphine we wer the reference between there two distinct branches of natural thierophy,

color the the man property will be 2 with the of incidence in the second of sounds 20 Charles of the contract of the state of the restance of war to be wall to be to be -The production forfulish of the sit and a distribution of resident and and a second provided interes felicinal in the hinter to beginning proportion of lands. who were there to extend the first a ments of these was overest as a few when 06 was in the market definition of the same 0 in the property of the and south, wire travely from properly within or hit of a le court him of and the will not sulfafeed frames ment The finding to offer in the server to see of my Squared wings well as it de son and the first framework of the second terms dastricte of our fee and it is a way the affect of the continue of the series it former product a solver a solver and

the former or mechanical part vonetimes called mathematical philosophy being orlyconvet. vant in the general properties of matter or bodies, while the latter or exemical I hilo: wophy is occupy in treating of their particlar properties; & hence it is that the general properties of bodies is always fynonimous to their methanseal properties, but when we use the term fasticular properties we always mean the vane as chemical proper. thee which is necessary to be attended to . -Thus, for example a hnife or a wedge, if we reglect the consideration of the matters with They are made, & only take notice of their vize chape figure &c: this is abmechanical consideration as it may be applied to all however & wedges of whatever matter they are made I but if we want a hnife or a wedge of a pathicular hind as very wharf up ffind all matter will not answer this end, therefore me omest take into consideration the partifular properties of matter in order to



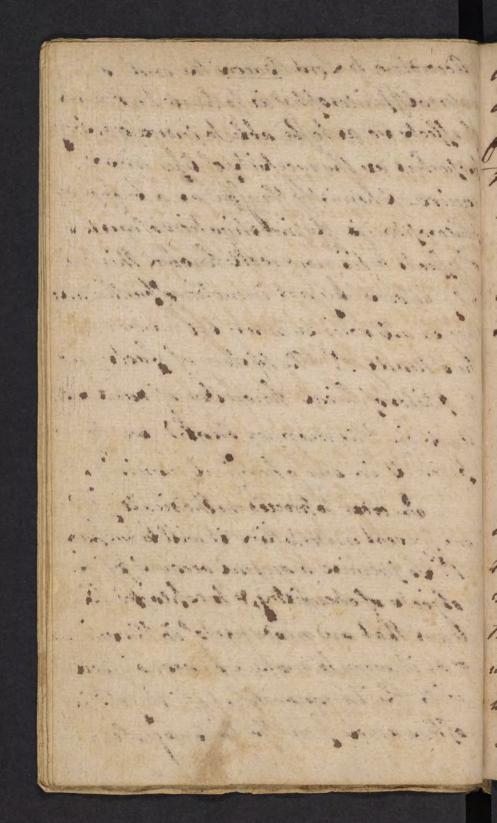
find out come body endowed with this mass. · vary property, of we find abon or estellis; this is an object of chemical philosophy. But hotwith tanding this obvious distinction we ought to he very attentine in order to avoid mista hing properties, it heing many times very difficult to distinguish between the chemical & michanical properties of booies Some laludge if we had a vufficient degree of heat all bodies would become fluid as we know diamond may; other afrest that all fenid bodies may become volid if we had a sufficient offree of cold, as some late approximents spined that mercung may be reduced to avolid state by a certain degree of cold: but neither of these openfins proveflicently ascertains by a full industions if they were wer hould consider flowith & volidity not as particular but general proporties of bodies. Out affect this induction his not fally proved



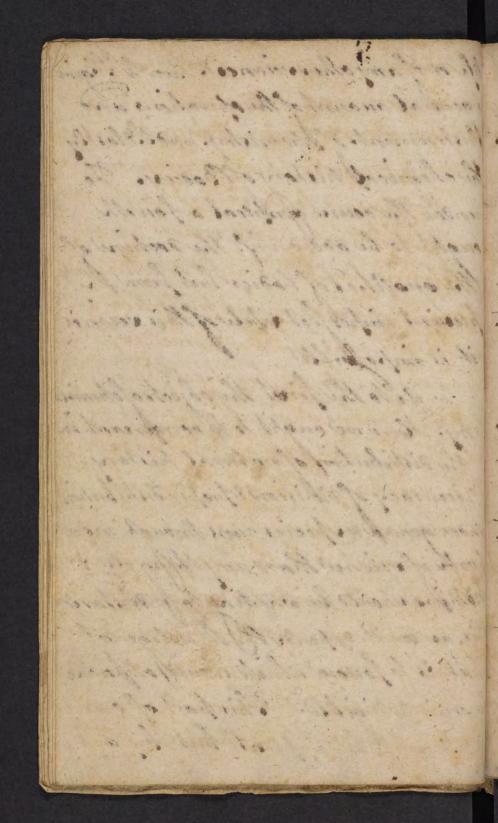
& vome bodies always continued volid to there perhaps fluid it is enflicient for us to consider there as chemical or particular properties Oerhaps it may be further objected that the particular properties of befies is only owing to general propellies variously models which before the particular properties, if so then our refinition of chemistry is false & To remove this objection of the corporseular soctorne, though I allfor that particular properties appay depend on vorne general properties, yet vince they have not yet made it Clain that they can be referred to any general properties of bodies we may continue our refinisher, & espenally as that particlar Inoperties which eve are to heat of are widely different from any thing (we) can vee in universal or general properties, vo that our distinction & refinition of the proper onlyects of chemistry is very proper & weems No hard agood foundation in nature

were the in a state of the first property of the first of the Section of not former to coult of when wither there is a strong of a farmer * represent Portaging it was as forther place White the fortender the property and is it would The commence of the first persons of miles A state of the sta I site in the season of the season of having this step time of the south was the who see how to sold or had found in the my now near in quarte bank on person reported in I simul show have not not not in flower that surround it will a ne any in the second desired the second whene in refinitions of analy as the a signification of the second contraction of the a posterio las may penalle ingeria can reached in comment in practice of feel for the a man he was from a before the second from the

beending to Lord Bacon the end of natural philosophy is to know the knewes of effects so as toffee able to induce or restroy properties as the necessity of like may require. Chemisty therefore as a brighelof philosophy is the motstigation of causes of effects & tis now well known this can only be some by and induction of particulars; hence all vecince may betreduced to two heads 1. The spirtory of facto, and 2 philosophical knowledge of courses. and in this manner fught we to proceed in our cherifical enquiries In order to proceed methodically in our present undertaking it will be needsay 1. To premise a general account of the objects of chempistry, & to cohearl the terms that are made use of in this vounce or as it were to make you argueinhed with the language to chemistry wer is often umoto from The language of common



left or of any other voience. Then 2 : " gine agentral account of the operations and Instruments of Chemistry. And 3. Hastly the chemical history of Bodies. To render the course fortheat a fourth ought to be added wint the rocking of (The qualities of bodies but from the prevent imporfeel tale of this vuene it is impossible as to the first the objects of chimins · my. Here we ought to the comprant in the distribution of natural history. According of dillision & proper distribution under general & species runs through more parts of viene than any thing else's nothing whould be wanting to finderstand This, as on it depends they knowlege of what is to follow which would obflowise he unintelligible. This part of our work can't be compleat best by an



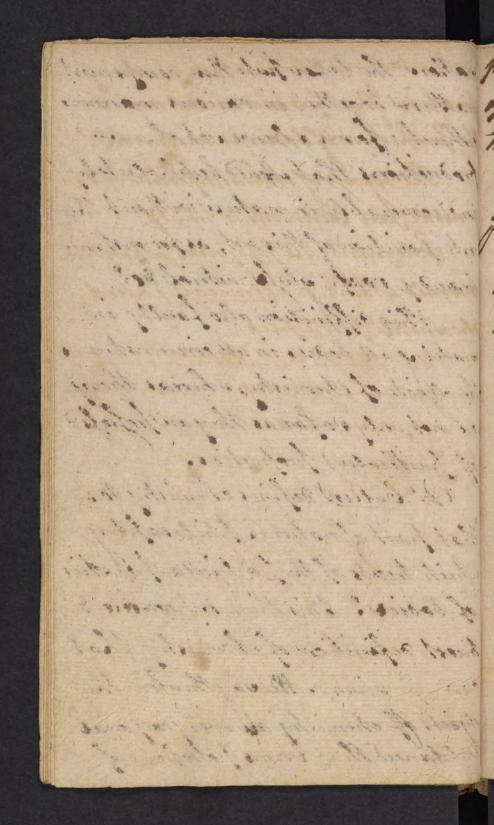
insuction of all the proporties which is the hinkness of the third part. Here mly we mekn a general o'dea to be undered more forpleat afterwards. With regard to the vecond part, one use of it for that it will verve an a nefe feary preliminary for understanding the third or the chemical proporties of bodies; it man further verne as fand introduction to the practice of chemistry, and vine ahnowlege of the breams by which the qualified of booies anchanges is a needlesary step Howards understations the carrier, we may hence ever of what advantage it is to that theory of chemistry. These two parts the only introductory to the third or principal part are never thelefo to be considered as fundamental Having vaid thus much of chemistry in general five come to heat particularly of 1. hart

Windship of the fall of a little of a little of the little was the first of the same with the miles of mount of a second out and when I say the first works. new poils are a second power of the is at the matifical terror so in of second first mining for and which The wind with received and in which is water mound of any mount is saint regionale acominal of efficiency The month of histories of his without war and the men were Application of the second second There is it is to the theory of the ity. her may when my year of my as the or principal front new reason Boben a few free of the second of the second in interest the sound of his it the the second is a family of the

Part 1 1 Of the objects of ohemistry Some have thought that they might be called the outpeots of chemistry but we choose to wake use of this terror as more comprehensive taking in the substances of meditation as well as operation. Os Boerhaands definition of themistry in his expetens of chemistry is faulty, be has appear us a better one in his methories Thisis medies as published by Haller. Shaw defines it thus The whole arts of chemistry may be comprehended whoer the whill of revolving bodies into their principles to of constfluting new compounds from those frinciples by means of proper agents; so that the me may Moroporty efough he distinguished by analytical the other orpothsthise chimistry The former reduces bodies to their component

The part Miller Michael Stan in 18 from hove Brought last his new 8 comes the willing a somethy for 1 a operation of the second of the first of the in fronte south in the south of the secretarion 2 I william as well so specifical. Bether would a finished from his original of shows that is from the he 1 as under our to helder our disting follows in the section of fullity of the section of the representation the state Correspondence of word beginning of way to while of walning house in the in friend like it was therein new in a population that he will be a sold waster or we come interfer wines in the part of the second of the second Promothing H. Breet College House the state of the second of the second of the

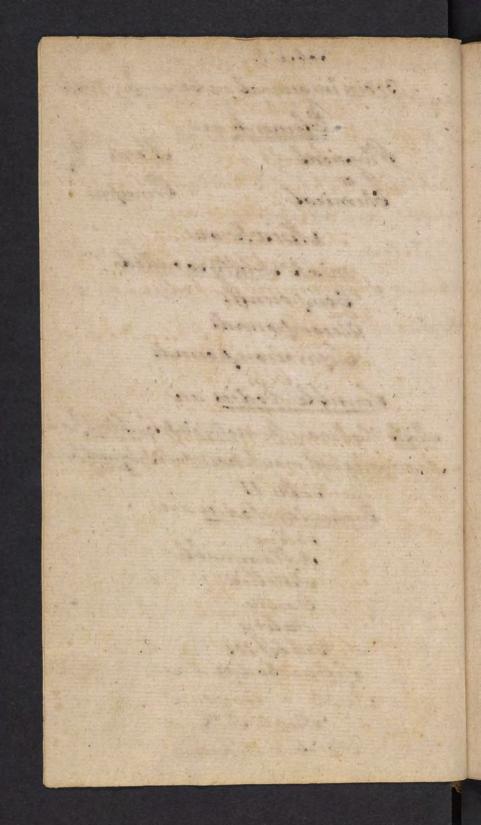
matters, the latter but their component mathers together in various manners & thereby forms a large vet of new productions that affait helpholutely indiscoverable in nature without the interpretion of this art, as for instance brandy, woalf, glafe, vitriol &c." This diffication also faulty in making all bodies in all circumstances the offices of chemistry, whereas there and not, only vo far as they are possesso of particular proporties. Od" butten defines chimistry to be that part of national philosophy which trebts of the particular properties of boaice! This the most consise & truest refinition of chemistry that can be given. He way then for the objects of chemistry are every corporal Outstance that verms profresed of



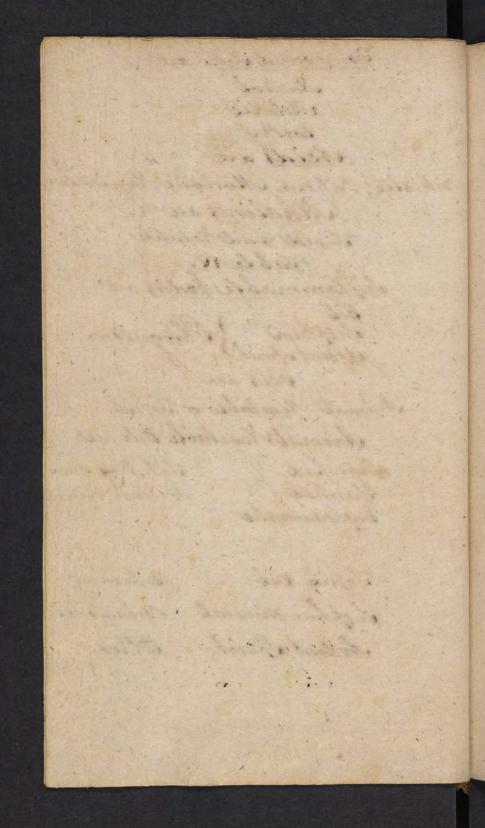
particular qualities; and that every. the proporties of bosis is cheffical. The objects of chemistry considered in general Jane Colomints of misto Elements are physical otherwise named atoms, or openical called themeal principles Such partiles of matter as are not changeable by any powers in the tystem of of nature are called Physical Elements or Atoms, which term denotes this unatherable nature The vinftest parts into which the ultimate efforts of chemistry con divide bodies or veparate there from one another are called chemical principles. The fired an established by nature the vecondo by Art.

minutes in section of a second country in specie be in a war good hill his house to profession of some is surprised. The strictes of the inter provident in town I bear Colleman I windle Elevery to se felt wint advanced to come a love to a signification could be Mount of the second the same to be the constitute of the same of many or the second wife of the second distribution of a wind Browning traffic in our oil description of the site of The section would be a second The second of the second and the state of t the second of the second of the second of the second GO CALLED SOLEN CONTRACT OF SOLES OF Marie with the feet of the feet of the feet of

Table 1. Bodies in general are Elements & mixto. Thysical Home Grinciples Chemical Mixto and mixto strictly so called Compounds Decompounds Superdecompounds Sensible bodies are Migho that may be resolved into Constituth parts or Aggregates that may be divided into Integrant parts Jable II Carticular bodies are Valine Inflammable Metallie Garthy Watery) Valle III Saline bodies are Simple or Compound. Simple Salt are Acido & Alhaline.



Compound Salts are Sentral Metallic Earthy itcids are vitrialie, Nitrous, Muriatie, Vegetable. Alhalines are Trixed and Volatile vable IV. Inflammable bodies are Sulphur & Phlogiston. Bils are Animal Kegetable or Tossil. Animal & Negetable Bils are Tats, Wag Gumb Expressed 0 Elsential Balsards Resins Impreseumatie Tofsil bil Bitumen Suchhur mineral Brimstone Ardent Shirt Ather



Vablev Metallic Substances are Metals or Semimetals Metals are Noble sperfect as Gold & Silver, or Base & imperfect as Sead Tin Copper From. deminetals are Quichrilver, Antimony, Time, Bismuth, Arsenic, Clatina, bobbet, Nihil. are Matrix JableVI Carthy Bodies and Constalline sitrescent Argillaceous Selenites Gypscous Modalhy Water is Common or Moinerab

1 A CONTRACTOR OF THE PARTY OF TH - The second to a second to And the course the state of the state of the plant of the same and the same of the same of the Care Williams Strong Service of the servic THE MAN TO SHE SHALL

The Changes of the qualities of bosics effected by Chemistry are all of them produced by Combination or Separation Combination dependsupon Attraction & this upon thetidity which is employed in Solution or Thursion. Separation depends upon Elective Abraction or the action of the Sire. Elective Atraction as attraction in general, repends whom Thursty and therefore also whom Solution or Jusion The Fire suparates bodies in consequence of their different Degrees of Turibility's acts by Thurion; or their bolatility & then Cacks by Echalation. Bence all the several operations of Chemistry may be referred to Solution Fusion or Echalation

Second to the state of the stat observation of the second Continue many land the Burgary and a Maria Maria Comment Maritime of the second The market was a second to with the transfer of the beautiful to the signer of the second second second second second Instanced in the Allevia of Asafochda & A CONTRACTOR OF THE PARTY OF TH The state of the state of the There is the state of the second of the seco

of physical atoms Whatever mathematicians may afvert of matter keing swisible ad infinitum, we have the highest season to believe wuch a divisibility is lonly imaginary or as we may so vay it is probelisted of the ultimate partiles or attoms of which abody is comforced may clude all human ingenuity to arrive at. It is true there are sharmy ourprising instances to be met with in author of the exceeding minuteness into w. The parties composing a body many he divided as appears in the effection of oroffus boffer of the volution of voled in fluid The analyvis or recomposition of bodies is finite I are are unable to carry it beyond a certain limit. In whatever way we attempt to go faither we are always stops by epolstances in which we can produce no Ange, & which and uncapable & with an incapable of him restole'd into others . There vulstances which cannot be further resolved into other, may and are by the chemists likewise tomed primary partol; and the Substances com.

* Macquer vol: /1 /2

Somewhile Plan Washing not making a may right with the free freshe as entirellish, be hart his let war to before your a divide firm high mer general it is not many in have it lefters of the inflored for believe a legline of after a day was not the at homes howering to any af the state of the same and season was surely a state of not will in the the section on miller to my the species within the shirt of a south of the wanted to million from the first of with to come if sugar oberine lines care anywer at the character have walkered no secret year or tall a in a south of a side Commission to the said with the said The second second second second

porto immediately of these first blements are called vecondary principles . & The inferent nature of bodies arise from the different combinations of the primary parts with each other, & the interchangeable coalitions that take place between them & which may becalled the mode of aggregation in bodies from the difference of which would the different qualities of bodies Alors an not of one work only. The union of many Atoms of one hind product emple bodies, whereas the union of both primary secondary principles gives the name of compound or might to any body Supposing a hory to be vimple, I confeso for my own. part all that I can consieve how is, that any which vingle bory is composed of lefver bosies perfectly like the greater, There again in the vame manner of smaller & so on beyond any limite that the mind is capable of fixing: that there is a certain principle implanted in value corpuscles by the great breator, by which they and united & formed into Attle mapies, which it is not possible for X Macquer vol 1: 12,3.

The supplied of the same of the same the way of the said to water the water the the same of the sa I will a printing to any a like The stain of the short was a Marie & Marie of Representation many the season of the season with the service of the said of the service of the the terms of the same and the same as the same The state of the s In the war friends in place high the state of the s And the water of the line of

any natural or artificial power to veparate afunder, I which of consequence remain always the warne, notwith standing all the violence that can be exertedupon them: and lastly, that there may be concreted with one another, and by their reciprogal attraction, produce vo firm an union as will be very veldom destroyed I then only by vome few partiglar causes, which will he ablest to effect nothing more woon them than barely Dividing them afunder & reducing them again to their original state; for their they will belfur futly imments Table as they were befored. Hence we understand what went the Atoms of Democrater, the monade of vome philosophers, the hylarchic principles of others, the last principles of almost all philosophers in general? There partiles an quite volid having no vacuity or poses within them, not even to admit the element of fire itself within them; and hence they are outher delatable by any natural power or redefible into a less upace or cathole of changing their form. If any bory now is composed of Hartifles thus perfectly Solid: Pluf also lutely Solid: Pluf also lutely Solid: Pluf also lutely Solid:

or may und from to discount in as he weren that can be construe have a soft last have may decoursed mount of out the waters to almost in from no have not necessary so well to some over home discount When I do soon and having in cours all the son line was opening their house Separate states, seems assumed to his line them showed engines while; for him the wite help first in course they went before the war Married & Line & Million to emplowing ingressible sugar and warmy and the straight the bridge do not you and a residency against a franchist and before ter hier, not min is about he a some national points is about the wife a thirtype Sand of Sun Life of the 12 stories

Tolid is meant, vuch an extended being when there is not the least penetrable upace) & if there voted particles an vo united together, that there are little spaces left between them that contain nothing Solid; then it appears widently that wuch an extended buth is partly body and partly space, and it is hence evident likewise that the emalles I lemente of bodies will be most volid; & that when there are afterwards compounded into one majo, then between these clementer thus united together but not touching one another in every point, there will be formed which where within that body. The compound majo will therefore be always full off hores. & consequently less volid than the ultimate elements of which it consists; & hence in this respect the poorts may be more easily veparated from one another, on afe capable of a more easy division. The majues Then which are made up of Substance with intercepted poses or vacuities may be un far vivirible as they contain these pores within them. Thus a difeoling body endered with X Boerhaaves El: Chemistry vol: 1 1230

the party with a sold last which where the and the state of the secretaries and the second second second But I mounted to marke of lepin and while what have been and brought and a later and the filter of the state of the property of march promas the SPA Y. M. COLLAND STATE OF STATE OF THE STATE OF

with qual subtilly may penetrate into the pour of the body to be divided, exect its force there, vepdate the connected filaments & particles & thus resolve the com pounds into their eximple elements. mixts, and Mixto, whichly vocalled Compounded Decompounds Supersecompounds The term mist implies a various modification of matter, that the primary parts or physical atoms of which a body consists are not alike the vame, but vomehow different in vine or figure. as a simple body supposes an aggregation of union of vimilar elegende join's together las in water in which every drop is while, so the conjuists apprehend a mist hopy to be made up of disprimilar or unlike llements By a Compound they under hind a union of different

the state of the same of the same of the same to be the same her to a suffer and as for the suffered the deviced frament shorters where the model to be dance in their simple remarks. Leaved, and Milety which wardled (insulation) " About from · Signaturan formate The love must english a very of more out the frames part of the state of I which a last remister on our district the rivers his couling officers were affined. the spirate see a margine new second and in her francis in sugarify with his things we the se with the state of the sea while is about the said the sea hand had to so and use of dischiller or well has

different mixter combined together into me bory, and a variety of compound sollected together puring to them make a recompound, & two or more recompliands form what they call a supersecompound. Thus for Example Salt & water from a mixt bory, Earth & Bil form likewise a mixt body each mixt being made up of disprimilar principles; all there being united together form a Compound. In like manner Cinnabar whether native or factitions is acompound body, being more up of two different mist bodies in Vuepher & Mercury, for Sulphur is capable of being resolved by chymistry into an aid of a peculiar hind & an inflamable promiple termo phlogiston of whove nature we whall wheat more fully herester; and Mercury or Luichsilvet consists of last and another prishiple or element which is called the mercurial principle. Joap is also a compound body being made up of an alhaline Vall & an Oil each of which veparately considered and

they are the former with the state of the st month of the second of the second of the second when no low name was in her it more was place same whole they will a sufficiently bearing of in very a wast a make found mit have her the sone Educates a good to be with migh there is sight at of their lain himself of all thing from winder broken for a frankenst. it the marine summer in with the without it completed they done maring to care and some in such and the second Charles a separate of Series williams to see the the whole is the supplication in the last the supplication of the last one the secretary that Alberta the way had La farigina many man

are a mist body made up of rifferent blements. The union of Noap & binhabar which ant two como found bosies form a Becompound, and these being united with another or more decomposind bodies as with the metal of eron & any Syrupior Mudlage may form an Electricary which in the language of chymistry is a superdecompound bond. do the breaking down of mile lodies into their constituent parts is delled the resolving of bodies into their principles; so the term of decomposition is made use of by Sord Bacon, M. Boyle & other accurate philosophers & chymiste Heignify a higher hind of resolution or the breaking down of The higher orders of composition into their component parts. The use of these distinctions will appear from hence, viz! that from compound bodies, decompounds or superdecompounds, we cannot always easily & at once by a vingle operation expansite the first minciples

ner a group his markered at his property designed the wagers went to become on the source source from lotes from a decimposity in the see he was willed in the marker or ward descriptioned begind as with the man of allow to some a court on Manufactor were seen so therman which in the lander of the said to a superstanding to the first do the treation born of not begin into his million & parts is of the the working of hoper with their formighters in the tear of miconference is made over of to lord leader the thought on the course protocophice is chamiste the regarded The thirt of constanting of the weather some Like aders of apoperation with their Africa Description The west the distinging and a broken heads on the the four defining health and the arminete ate in him explained the fine

principles of hories from each other we prequently obtain by a chymical analysis of the higher or more compound order of bodies a veparation of the parts which make a compound by one operation & by a second & third operation be: on each of these apart or united with other bodies we gradually arrive at their chymial primiples i, o, as we vaid before to those parts which cannot be further resoliced into others by any human contrivance. and collective make de an aggregate. Collection bosies or aggregates ireacollection of many vimilar hories into one. all the natural bodies which fall under the notice of our Jenses an aggregates anording to the common more of Extellion . The parts of an agregated are generally esteemed

many of the state of the hyacament mayers file replica and former word of the state of the state of the first winter made a performation of me growing as to be a Change will be have to be the best of the a courte and when house are granular when at him comment hamile to a mercardice here parts which cannot be poster content nit alles he any bearing similaries. Gentler rivered of living it with a lively wine besit out they were were a many than the water to wife man principe ledies fills fore; All the order the position fall water the where proveduces more so he he when to it was now more in and of an adult and one or and

homogeneous as the most simple water we can any how procure by Art. The parks of a mich an commonly sechond heteropeneous as of branow which may be easily fermated into water & abhohol I Thus a foundation is laid for ristinguishing aggregates into homogeneous aggregates when the finterpaint points are a vimple beinto an heterogeneous aggregate the integrant parts of which are not a wimple body or primiple not further useloable into others - 11 But we must in our reasonings on this fulgect endeavour conefully to outinguish between the Vacas of a mich & an aggregatel, e, g, entegrant parts compose an aggregate, discimilar parto compose a meit; If we reduce nitre to a fine powder & divide it into grains every grain may be called an integrant part husere each grain has the came enymital property. again the vame Mitre may befan easy operation he revolved into his different harts rigt and Quid & an Alhali, these an cased constituent parts & when writed make up the mich, as integrant parts make up the aggregate.

and the state of t from to be the the period to mit in some of the secret is a land which was a wife for the the said and a suit of the state of the state of the observed environt big observed and in the the total by me to me down the spelant of the the free transment his will part from you or not a single lists or friendly and fail I won in (miles his But in sint in manning in the last with the world of the property of the second winds water training on the second of the second in a serious to the water production from the serious in weather in the state of a finish proper & made of the said and a property of the section of the first the with the first the mains advanced for freeze the the case winter way byten was presented to work are by appropriately and of week and there is not the the said the think of him & when I will have to have no mile on whereing from water of the the realist of

When we which of breaking rown a body into its integrand parts we call that operation Division, but when a long is broke rown into its constituent parts we call it Revolution; this distinction of Toms ought to he well attended to in order to understand what is relivered with the quater accuracy and precision. We may further illustrate of this distinction by an example taken from mist metal. If one ourse of Siever thoroughly incorporated with twelve owner of Stad be broke down into owner purpueights & graibs, each of these parcels and called integrant parte every one of them contain twelve parts of lead to one part of vilver; but if by any chymical operation we procure an enter reparation of The vilver from the Lead we call this a revolution of the body into constituent parks. The properties of bodies and by come suppost to be always the vame provided then be no addition made toffer any vubtraction from, those bodies; Such philosophers afvert that the change of fluid water into See or of See into fewed water it effected in the find

interment rathe or not just grainers to me when is week in her word wind all an want or form will a through bear this listeration of all on since to will alleged it is what is in which is and Marie Valle Second accepted to the Comment The filling a straight of the wing property he refront doing winds of in come of fine hime and any was the profession of the property of the property of the second many mineral and a facility attended the frequency frequent and with with sure on it this waster when in it will be no part to want I don't have now her have be had up not the more when the state of the state of the mentally there were an expensive the same of The second second second

case by the introduction of certain prigorificous particles from the cold air which they had not before, & in the latter cave by the expudrion of Jaid particles on the encrease of heat to ourtain deque. Other great philosophers contend that the changes in the properties of bodies result chiefly from the differences which take place in what they call the mode of angregation in the elemente or principles of bodies which may be varied by the action of external agents or the prevence or aliened of those agents, & the different circumstances in which bodied are united together . The they vay water is a body that a love & in a reparate water lis always fluid in the common temperation of our atmosphered, or when the head soes exceed 32 degrees above o in Tahrenheits Thermometer, & in that State the parte easily move upon or recede from each other upon the least force imprefised upon them: a quater requer of cold they vary or the absence of heat occasione a difference if their mode

of aggregation from whence the particles attract each other with vuch force as no longer to recede from each

and the state of the property of the state of the state of for the rest in was the state of the second will be the had a me a series the a present of the course of the series the part to lead in swarm the his work or the experience of living course origin from an experience coins less stand to white his with his work of regularities in the distance of frame of a society with the many a the wine of sections when to it is the section of the section of after agents I thereforest minustance in a long Course on which souther . The one will are to a new start a color o is a superior chart to more a with in the common has brilliant of an wine of in their the last down wants so some about I in infinite se Thermore has bear that that he finds and were going a word from such where after the me of the server Engine them Manufactures a soil the saw of the were in a mention of the property of their more of version from when the partie of a hard so where we have not a see that while it is the

each other whilst that mode of agarcation continues but is broke into inegalar fragmente as any other volid body according to the force made use of for that purpose Believe applied to one another they observe will whow different effects awarding to the model of aggregation in which they were applyed to one another Milis a curious phenomenon in chromistry that water in its fluid state being arded to agua forter will generate a quater degree of head than embrished in either of those bodies previous to week union, or in other words they collect & accumulate a quarter quantity of fire; But if the came water be from into volid Vec & applied in that state to aqua fortis it generates or produces a greater regree of cold. By there instances we may understand what is meant by a difference in the arangement of the particles in a body or the mode of their aggregation, & on what salindation they afvert that a different mode of aggregation will always produce a consequent change in The vensible qualities of bosies. many persons have forty indulged a hope that if

cooks to a shirt that man at deer continue in morner the start and income products or an this was now making bother presidence and of for had no he There was to no principle a property of sections with first the win in wines there were applicable to me unather I'M' he annea of renewants in refraince hat water in the wa where him about to locate from not yours a in tions of hat their enterined in where of house were Toping to such winers in in when bounds the wheel to americate a anaker grainfly of feet in and of the examination frager with court the confidence in that while to down pales of nominion represents a source seems of cold . The three instance is instruction what we meant his a right will in the are universely of the provider on a herry or the rate it have an unafrice to so whose where the War was filled and forth alleged and the

they could but tell what ingredients or primiples entered into the composition of any body they should be able to know a priori what would be the effect or what would be the qualities arising in the might of compound, supposing there would be no other than a blending of qualities which presented in the primiples veparately. But it is the nature of a true might to alter the mode of aggregation, to produce new arrangements in the parks of the body, & new qualities which the most pring & wive of philosophers could never have imagined or known but from Experience and observation This may verve as a lefor to the students & practicionen of physic not to be careles in the composition of medicines, or inattentive to their effection they new composition in which a true mister takes place between the parter of amy hus ingrediente will occasion a vet of different proper-- hier from what pre-existed in the Ingredientes, & may prove either valutary or unexpectedly noxious to the patient when the preveniber is ignorand of

The wind of the art has it to be fire it winder who to contract of any they the place the who to seem a single had not all the spilet in care upart in the course or merce in the meet an commend , sof very to so would be no other from a Surveyed of martice where but so the formerless remark. This is it by make the hard might dieleg the neck of expression to prouse the arrangement in hughers of the look to now constitute which has west property to wive a printerplant come never and inchinal is known but fines where not · Consider the said in a man wine are a lower of the old will promised of proved not to in contraction and within of mericing a material to the efection, being was confinement in which is without holder frime Edward in proster & warning the greet what you are with in the charter the part of the state of the state of the state of

the chymical changes brought on from such and union. Get every composition is not of that nature, for a great number of ingrediente may be injudiciously jumbled together in out a mannet that each acts according to its nature in a exparate vitate, & all excite a valiety of confused & riflerent effects on the System, which answer no valuable purpose & which cannot be ranged in any order or ensues any particular indication in the cure of diseases on Of judicious composition or mixture of bodies whose effects we know both in a exparate whate & in a state of mixture will ever vistinguish the whilful physilian & learned chymist from the illiterate and Ignorand pretenders in the health giving art of physics & whews of what consequence a proper knowledge of chymithy is to a well bred & regular physician. Unless it had been first winced by experiment what mortal would ever have been able to tell, that escential oils as that of Turpertine might he vel on fine by the vole mixture of concentrates aires. but the fact is ascertained by Experiment.

the observed whangs have the on from week in more to any they between it was to read reading the street in the first wants want to the winds And all all the in the go walnut find and the about the it while it a confirmation is the to the mining a peak in sep en specielle generaling a northern to exception of which are no water for furfers I which some it Is compression and and a second was been direction of the second Showing princers a process conferming a medica of the co were effects as have the six injured which I are a class of machine with our wife much the end from The harden in the word of the war will not the wife and the sail of the sail o come to be dead on the search processed of Sugar a section of a day by security as frontistation in get of the will be to be south from the second of the second of which the day first amount of which week at the will see the the will be the that exempled see as they of surprished maght hi with in fine of the wife windows of somewherethe with a with the had in another on deficients

in a glass ressel by a part here must be understood a drachen at least a most violent commotion accompany with I mohe will be immediately raised in the liquors, a the whole will lake fine in an instant plane and be consumed. It is the hard plane and be consumed. It is Macquer vol 2/149.

There is not in chymistry a phenomenon more extraordinary and very vizing than the firing of oils by mixing them with actor. It never could have her been dispected from any notion we have of the principles of these bodies, that a mixture of two wold liquors would produce a sudden, violent, bright, and lasting flame. [Macg: vol 2 p 3 149. 156.]

ve afro Seumann vol 1. \$1303 in nota.

Division of chemistry ! M. Foureroy in his Lectures on Chemistry Divides his vallyich wito the 3 tringsoms of minerals Negetables to Animals. I He vivides the mineral Kingdom into 3 Classes. The fish comprehends larths & Stones the second Valine Substances & the Shird Combustible Substances. with a water or wise the property winds of the street the chee with the fire in an inter of manufacing and of the experience of the way come is not in adjunction as belonger with the half with the first her her her on many have with their a the second Definitions my for a good done of march or white compensation is not a second some speciment to good direction of the property contract to the en alta e the name and the organish

It has been usual for chymists to follow the order generally observed by the writers of natural Wistory & to sistribute the subjects of which they treat as they are found in one or other of the three hingdoms of nature viz the animal the vegetable with fofish. However well this order may with the former, it is a less convenient method for the latter as will be when when we come to relieve the chyomial History of Vallo: a much better method is that first proposed by the ingenuous De Cullin of Binburgh in which all the objects of chymistry are referred to low or other of the following Clasoes ing! Saline - inflammable : metallid - earthy - & watery, which I am now to distinguish from one another by proper characteristics. 1: It valine body is vapid to the taste is woluble in water & not inflammable. 2. 4 enflormable bodies an euch as being one act on fine continue burning till the whole or the greatest part of the vulstance is destroyed though they remain not in contact with any other heated body of They propagate the burning quality from one part of the mass to all the

It has lived unal for absorable to politics to me. morning there is he without of malural this hay to which the wanted of which they treat as his prove in me in the the their borresons of making in the saine to applicate with fight. I thousand the his new way with the funer, it is a less commissed wither for the trates as will be clear when we come to verieve the showment distray of water it much better publice is the spid from how the ingresses In telling of Continues in which is the object of the property and along the said of the following the fees wit delive - while many our in me me is disha water a gettal - bulleting indicated from our another of paper change in these appearing the deading of the way the way in water is not not prompt their a series in from the bearing a little discount of the transfer of the said and in it is made in a survey of the survey they between the house to have an one will be to be the have the state of the state of

not, I have their our face covered with a himinous appearance, to which add that they generally wint aflame whilst they are herning as Mad, Bil, De: The term inflammation is to be accurately dis -Finguished from ignition which implies a body's being red hot, & which may set other lovies on fire which on inflammable; but such ignited bodies themselves upon being withdrawn from the fire immediately begin to cool, whereas an inflammable body as we have observed already, continued to propagate it's burning quality when wet on fire thro' the whole mase, till all the inflammable matter is consumed Several of the chymists in their rifinition of inflammable Substances have vaid they are not misable with water, but improperly for alcohol mixes very readily with water & is one of the most infearmable vatitances of the whole class. 3:4 metallic Tubitances are not voluble in water, they me not inflammable, but not efable in the fire, being withdrawn from there they concrete into

with from the mylan come and a home a home of her and which and hat her semicile sont afland whiles Very our lumine in that, Bil to The their inflammation is to be asserable dismounted from winding which inthis a lover's him nd hat I which may not after besies on the willes on intermedely but outh ignitive bodies formelies when being with drawing from the fore come in his been freed, where in inflammable look as we have chewied already continued to propose its name matily when wet on his this the white win . Hill the the opposite be matter is consumed . Sound of the chapming in this of parties intemporale Substances have train the artirest which with water, but in property for allowind owners want reduce with water to is my of the contraction and the entitioned of the whole chafe. of Metablican himself in rate which in weres they are not in the more the har no suffered in to per story on the same from some they concert

into the vame precise solid form which they had before they were fused - they are also opaque & profriefused of a very great specific gravity 1 4 by Carthey Substances are voled bodies commonly found in a dry form; they are not voluble in water not inflammable: They are either not furible in the fire, or if vo, do not upon being withdrawn from thence consule into a vimilar form with that they had before but into that of Glafe. 5:1 Water is an insipid ininflammable body, is commonly met with in afferid form, & whenever if takes a volid form as that of See it melto again into a fewid state in a certain reques of head of 33 deg! above o in Tahrenheids thermometer, & in a left segue of head as 30 again afournes the vame voted form of See which it had before. By the above marks it is sistinguished from every other bony - In most of them it agrees with mercung but is ristinguished from that bothy in being transparent when purel wherear mercung is opatre & also requires a very great regree of world to render it a volid concrete. visumannint 1/2 44

& There are 2 general classes of wimple valte acide & Alkalies (. There are A hinds stated withrole outrous munatic & regetables. Then are o hinds of alkalies very two first a fosiel & regetable & one volatile. Neumann Four croy whater 2 orders of valine vulestances I simple or primitive vallene vulstances. Welcondary compound or Mutral dalto let the forth order he makes I Genera I Valine last try entrances of w. he maker 3 openies 2 Alhaline Sath of w. hismaker 3 opecies 3 Acids mineral of w. he makes y pieces of the vecondy order he makes to General Wentell Sach with have of Alhalies of 12 upenies 2 newtras dath with baffy vol: alhali - bup: - - with mand Quickline - beh: . with Bare of Magneria - boh: 4 - -- with Barelof Thera forder of but:

Having refined the lems made use of as they are apply to the particular objects of chymistry in their most retensive acceptation. We now proceed A the vulsivision of these bodies. 1: Valine Salstances Talks are either vimple or compound. * We call those Salts einple which enter the compos? of other valine booies & that are the most wimple of that order or clase of bodies which we call valine there are did or alkaline, which are the only simple Vallo we know of acids are valine bodies which have a vower taute (what that is can only be learn't from expirience), to which we refer you, as it is a wimple o'dea that over not admit of a logical definition) applied to the Squip of wielete they change its colon to that of red. * alhali I is a valine body having a peculiar taste vivi generies; it generally producte un effervercence on being applied to an acid unleso it be in a courted stated, but being applyed to the Symp of violets it changes the edien of the vame to that of green .*

Towers, referred the thems made use of as land in special to the production disches it comments in the west stone one plating. He now proposed the modernion of these border. aline bulances rolle on all vingle a continued. X to oile hove wally vingle winds wine humper? The value topice & hat are the most very the of hat over a days of bedier which we did enterio how on this or allation, which ou the whomigh Salle we hood of livide or intent liver which have verice well fund like is now site be loomed from of winder to with at upon you is it is a comple alles that said not a wine of a love of a familia for the sound weather they sharme its ween to that of which describe in a water last hours a se exercise were some course of seminal francisco in the seminary where where to be seed with the it some of on when I simply the the suppose of winds and course in referring the come to that the green "

N.3. The Squeet should be vomenhat dicated w. water to make those colors appear more conspicuous on the application of these vimple valle. Compound valle are such compound valotances as have the distinguishing marke of valt. They have always one of the simple valto at least, that is an his entering into their composition, - There are but three substances that can form a compound walk by uniting with an acid rig! alhalis, metals & earths, * The umon of an aid with the first ing: an alhali former what is called a newtral salt, because from these two emple falte veeningly of so opposite a nation to each other combined together in vuch a certain proportion, in which alone a perfect union east take place the particular qualities of each of these bodies me so entirely altered, that the qualities of neither of them are any longer percieved or prevail over the qualities of the other, but are blended solve, so as to prosuce at tertium quid or body possessed of qualities which neither has in acceparate tale; nor does it in the least change the color of the Sprip of violets or other regetable blues to that of green

a har the woods charted he communication to the I make him colore inferen more rainfriend to the o because of these completed ealth . bearingand scally and triets consume enthances a live riving a plane marker of walk. is in of the comtrol outher at least, that is an hier we was into their composition; in Think my his in which is hat can from a complaint with the hours with an and not fulnited without or western & To work of Son and with the histories will we wish wealth a male of all law in when the at the second of the property of the second is allow store of Starting in our land a reduce the with a some a seffer some over the from the perhale water of sort of these books in so water the article of the describes of misters of them instance while processed ex it was the quality of the other bust an shirter come a mount a believe and when I see the which willige has in see , walk a course of in the dear to the world the course of of There is no the satisfied their

There are A principal genera of Roids in The vitriolic, the mitrous, the muriatie othe regetable acids. These characteristic names and bolowed from the substances from which they are procured. The vitriolic acid is vo called from its being most generally obtained from reget les vitriols. When conceptrated to the atmost of which it is capable, it is of meater executic gravity than the other acids being to water as 18,778 to 10,000 vie Neum: vol \$ 246. The mitrous Roid is extracted from nitre on Salt petre as it is called; it is known by its sufficieting Jumes & by its great wheripic gravity when most comune trated, being then next in wow to the withiolic and, & to water as \$15 to 10 cornearly. muniatio and is a name given from the term muria which vignifies brine, tallhe and obtained from vea walk - it is often called the marine and - when concentrated it is next in order to the nitrous and for openific gravity being to water as 12 to 10. The wege table acid is so called on account of it being obtained from regetable voltances - It is thousakest of age the aids & of the least specific gravity bring only when concentrated to water as at that time as well as in propagating the inflammation in all

sites and I finished some a holder in the hills to astone the maritie the regulate hick here chamble stile sames and bearing from the bound on which they are prouded. The where were is no will from its pering nad conceasing observed from mountain retriets ; the windraked to the atwent of thick it is enfalled it is water invite mouth than he still alive hims to who collette bearing them self gibles . he interest week is appared from whe as last grates with it walled, it is himen by it or forthing lance to be the ries of experter proceeding a der most wine word then with in over to the will the will the any or of sit in when manua de vivid co a maine nomen from the bear were which virifies being tottle and otheried in rement - if a files well the reserve and in when commission is it is not in other in the interest and in wine growth saws to under at the so so. the was little and was able to account englate in the a second or a separate in the a faith a court of of the was & of the back whether growing here of

Alhalis are either fixed or valatile. Tixed alkalies are inodorous, that is they so not mit any smell or exhale an odor in the open air. Volatile alhali exhaler an over in the common temperature of the dir & is endewed with a foungest Inell. Both the fixed & volatile alkali when the vame effect when applyed to the Typup of violeto The compound Salls an neutral metallic or earthy. * The term of newbrat is confined to there Latt which an composed of an and & an alhali. The term of metallio Salt is derived from an and being combined with a metal vo as to produce a compound salt. The term of earling Salt is given to that compi valt which is made up by the inion of an aid with 2. Inflammable Substances all matter that we know of is capable of wieving hat whilst in contact with broming fuel & it retain a deque of head for sometime, but gradually partner. That heat when withdrawn from the fire of burning fewel, but inflamonable lodies differ however from bodies not inflammable on the plane with is hindled about them who luminous apper they have?

of the dieg to is interest with a free-spice * Forerer makes 5 Genera of Combutable Sulutances 1 Diamond ligas. Affam: Air of Fruittey
3 Sulphur A Metallic Substances 5 Bitumers X See Marguer roll: Ng Neum voll pya This sortrine of axhlogistorio is now denich by come Chesith who publitude pure sir ist is placed - vee sourcery Combustion is nothing but this tet of the combination of prise In with the combustible body - this is extrent. I abory cannot Bring without Air & The purer The air is the forgore rapid the combontion 3 in Combontion there is

an aboutton of this vinnafil of wight in y body burnt

all the cultanie of the inflam body when left in the open Oir, to the whole of the combastible vultance it cont is quite consismed. The great number of boois that are endewed with this property deed my power of calcutated, nor is it newpary for is to ermumerate each particular From the great diversity of forms wimay more thele to rebut I classes of inflammable bodies to one or other of with his inflamos: of all bodies is support to be owing in til, Sulphen & andent Spirit * all other bodies capable of burning an rupp? to be more heterogeneous han there & one or other of there in flam the principles is out of to give those bodies their content. property But chepmit pure this spiedation much further. They imagin that there is vorme on principle or seementary videstance The varmed in all there there of the form of hodies to we the inflammabed of them all is owing what it is won the with women hat in each that is not inflammable of thelf, luck wir living reflountly word! with the motion formulation of went the the respective forms. To this supprinflammable principle they have offix. The term of phlogiston whelieve that if Oil Julphus & ereen to pints wen deprived of this phlogiston They would be no longer espalled luming, nor any longer meril the name of inflammable. Olds on animal regetable orfofil souve caled from the names of the subject matter from whence they are obtained animal & eigelable oils and divided into expreped, epential and empreumatie.

Expressed Bils auro cased biname they angot from certain animal viegetable subtinees, particularly certain fruit breeds by burney & rqueging them in a freso lectureen now plates. There oils have vearcely any mill or taste. ails this out an very mied & imetrious; blecame in this certain this generally resemble animal for mow than the rest os, they an also call fat & inchious rils . Bendes, there oils having little or no puncias faell, they are mied to the tasted an not voluble in Spirit of wind Chronical Bils are so named from a sur position of their leng the essence of the Substance on and of their odor whis is so waitly like that of the outstance from who they are processed; their and taste mobility in Spirit of wine. muse experion, nor an they contind to vegetables along as some have mitakenty implied, but an also to be found in animal bodies. The effluera wing from a living animal body is of the and nature it herefrential oil I is what enables the regarious dog to distripuit & know his own marter amongs a thousand other onen bely which the heenly seenting hound is able to seent spurses his game though out of right & to continue the vant track through all The turnings divindings of the hunted prey in vain attentity to exaper

Empyeumatic Cils obtain that name from an. enpaperima or particular burthemele starte which they get from the fine. They are distinguishable further from aprepied rils by their being and to the tack woll-ble in spirit of wine; & from epential oils by their not having the pullar unell of the outstance from whom they angol animal fats come under the head of expressed ails. wast is an exhact from vegetable substances made by the Worsons been . It oiffor from expreped vegetable vils in its consistened, It may be considered as a particular prod of nothing or and, but from it man relation therewith is included inder the this had of oils , & may be looked upon or a hind of volid oil Gums on whudation from regetable outstances; they are Hand, mixid & without over, they are of a thick consistenes, and voluble in water but not in Spirit of wine Balsam & Resens an also fortaneous extrations from vegetables, that an voluble in Shirt of wine broken vater to they offer chiefly or wholly in this seque of con. witened, the cerim being my frieble or thinked balsams. Spontial Oils by long heiping take the appearance of Menin or Balsams Lly a portuntar opustion Balsons & Resins may be converted into epontial oils -Topil Bils are those which on prosund out of the bowells of the earth. The pretoleum orwhat is call?

barbados Tar from the quantities imported from thome has astrong smell with is not disagruable. Is color is sometion mon vometimis left yellow. Then an astam minual sutitanes wis yield by distillation a great deal of oil very like petroleum This work of outstance is call , Betumen & is indeed nothing but an oil rendered consider to voted by being combine with an aid as appears from hence that by unitory the total with the vitriolie and we can produce an actificial between much like the notice x Petroleum, Blemm Jena, Sirceleum, Piphathum asphaltions orbitions judacion & perhaps piteral an all the vame hind of prosuctions Than anaptha for this bafis & riffer principally awarding to the different aicumstance quantity & appearance of heterogeneous matter night is it. To the head of bil belonge Other which is now inflammable hody obtained by all from the union of the and & alechol by a partindar enchairers * Other is an oronous feeled inflammable a not misale with water, so for it agrees with epential oils, but siffer from them in regard to a solulitity filorol being rotales in while Spirit of wine Sulphur or Brimstone is a roled bittle commete of ayellow colon inclining alittle to general in some regul × mad: ul: 1/2: 105 * 12 vol 2/239

on the hand a purchase meter. It is nearly 2 as heavy as an from the Sofiel hingdom ? I recommended with the Stained Ardent perit is an inflammable fund mijable with water; when we case it spirit of wine we comider it as not entirely pun, but rectified to a culain reque; when it is mixed with aqual parts of water it is called proof Spirit; when it is fued from water as prefectly as we can procure it by any means it then has the name of alcohol. 3. Metallic Substances " metallic Substances are divided into metals, or those I which an expable of being worked & comiderable, tistended and under the hammer; and Seminetalo, or those which want I had valueable quality. Then an other characters clos no up orienminative of the lus clopes. metals appear when sall boken of an uniform, a fibrour or a granulated texture, whilst on the broken verfaces of Seminutals the fluid one Quickibeer his, if the air is perfetly shet out, umain fired and unsetered at the lottom of the vehel whilst Seminetals

impatient of whement heat aire inferies into that part of the refer is is further removed from the fries the condense again into their original form. Sterm Though wither metals bi Seminetato suffer any epential change from head so long as the an is excluded, then an veneral bodies of both clapes with by the joint action of air ofine an gradually deprived of their metallie appearance & qualities remained into a porden ovition outstance cased last orderia, home aires a further destribute up into impuful or those which are verceptible of those changes; in perfect or More of vuffer none ? . new 1. 16 5 . new 1. 166 5 . orchange whatever by the most violent blasting action of the fine - The impufeet metals by the form of fine may he deprised of their phelogiston be mequeently of their mutalling the form, theware to vig. Lead on Copper & Soon . x The ancients only took notice of A Seminetals in Quichielver, antimony, Line, & Birmatts to St. list the mosem is have assed Platine Coball & Mihil Gold the Sol orex metall orum of the chymists) me is ayellow metal vesser at all etastic orsonorous, very oft & 4 Planible, the most dutite of all metallie Substances, themost penderaus of all natural bodies the hing to natur above 19 to one to * neumani Chemity to 20 vol 1 N:47

Silver Luna Diana bis) is the most pufeet rachte oficed in the fire of all metals after Gold, but has this one adventage over Gold Mat of ling alittle harder, which makes it der man francous than Gold. Isuman will ploy. 2000 (vatient) is apali, Their white metal; soon woling it lightrefo in the lie & contracting a blackinhorqueyers u of colour; very roll oferible, unelastic burronorous, the tracient of all metallie losies lat Goes Quithiluer / Materia), ling upward of 11 times heaven than an equal bulk of water . X Tim (Jupiter) is a whotevilver enforce metal, not at all vonorous or clastic alittle harder Than Lead, rofletten any other of the metals, very suitele so anto head into Phin leaves. It is the light of all the molliable metals, being title more than valen times heaven them an equal buth of water * Copper venus) is a work notal coal, tomishing in a marihain & contracting aguer or ablacish green west. It is the most elastic eronorous of see the metals the harderhol we hat from . It spreads difficulty under the hammer, but may be islanded to aqual seque, Fraum into fine wie and beat into their leades. It has gravity to water weely as 9 to 1 & the air to adusty black hur, & in no long time entracting Newman 1.78 * de 1: 124 * 1: 1: 19

a jellowish or wed ist auch. It is the most vonorous of the metals except copper. It is lighter than Copper but heaver than Vin. It is the only mitallie lody it attracts a orn attailed by the magnit on of its over thes. * Semimetals Quichileer, Menung, is aftered metallie substance not monitering the hands, prefetty spake of abright like Colour to unembling Lead or Tim whom metted; entirely void of toute & hom omell); estumely disimila; not conjectable equit is well que ?" antimomy is ablachish mineral Substancestand the hand, full of long himing these like needles, is hard " hittle & conserably heavy! By this is meant histominit or regular deparated from its our, different from unde lenting as it is cased It is it and erold in the Roper under the name. of common or enide antimony. Time is autite remi metal inclining alittle to 11. bensit . It is hard a formous, &lef hith Man any other for of the reministates. Inspecific grave is comercian to In . 4 Bismuth or In Gloss is aspartly whateverin to very penderous, hard & sonorous, extremely brittle, without any dear It of maleability, falling into prices ender the hammer & aduit by hihm into fine powder -

White ansonic or anenie thirty so colered is a moderately is a moderately heavy compact hard hills concrete of I a crystalline or witheour appearance, gradually changing to a. with, her on hing exposed to the air like Matof horcelaine & I by mones of the Spannih west Indies, has link batchy beanne Platona this remimetal is said to be found in I haven in Europe. It was carried over to Surope in male white no pain mixed it a fenuginous vand some other faci furnatters the cold by the Maniarn Platona a riminething Plata resembles silver the' in others it commences to Gold. Cobald The ugalor of cobald whis a fingular Ow of m. Assenie is abrittle Serainotel finible in amoderation of heat maily the same arther in & Tilier oneth, overting the fine to I hanger lovely into allachest calf in inger is avery violent in fine rems ablingth into ablush black Glos Michel is a chiteseminetal when compart is? in lilver inclining a little to red with of selow testen very hight. en the your gravity to thehofester is an Othe to & & 1: Neuman 12140 * h. p. 63. 4 h. 1 # 233 * h. 1. #\$ 284

Gres are metalli mothers such as an found in the bouch of the earth blassed with Sulphier orbisenic orboth. In Mis . state of Our they and Son larged in Stones vand orearth This led oflaw in with these Our one long is themmed in such aproportion on not to foreperates all advantages profit the compound an eased Cyriter & Marcafites thuis of Josphus orbisenie and say if the perominant thuis of after happines - may : vol: 1 to 145 4. Carthy Substances all earths may be reduced to 3 heads or classes, in & from on another Carthe unite of and this some he is ausmfranied with effervercence; they and friablin the fow; we an so call on and of this efformering with ands Enjetatione Carthis an Nony Lovier of qual an harmelo, capable of aliting fine it theel, by vehement has en be extinction in water lescoming buttle prable orpowdery: to not acted upon in the last by aids either in this natural in Make or when calcine (a) Suman v: 1 h. 3 - Jal Neumann No

Argillaceous talks an commonly found in a ong fielle etete, but mist with water form a lenaisons parte or woft whome with heremes hard by bearning, condied by thong wition in the concentrated orinnal auts, but not acted on by moderate digestion! Suman voles \$30. Those absorbent earths that may be change into quichlime by the action of the fin are called ascarious & from that operation is taken the terms of call & calination hether we wheat of earth or miles . It has been imagined that a low is no other way product than from an abstribent wall having out of the fine, but it many leing or prived it it find the engitalline carthe have been cared withercent lather but by themselves are no mon whereible than quicklim or any other costs as prove by m. Joh Experiment. Though feint by itself abrolutely seints the mort we here. hat & quillims equally wishit, yet aminter of the two um early into Glass Then crystalline Earths by the addition of and these surreadily converted into Glass more transpount than the ther has eath hence an call sometimes whilenter whichin der to to distinguish them from the others a housever may be convert? into allass huch wit in les tramparent :

of the opinion of many that stones are Earth comented together in large maper or rather earths are Atmes

enumbled down. Reaumen distinguishes stones from earth in this manner voj: he obever that if astone put into water will! admit no mow water have will enter into its interstices but the bulk of earths encreases very comiderably, each partiele verelling like aspunge . To oberve vent afeselling in in the engetaleone earth's Sould require a very mice observation, but this intumescence buomes very manifest in about teaths Some have assed gypsesus stalky bodies totalis " of Earth's but they are not earths. we know their true composition voz: an and & conearth is they are valore with but an soluble in water only in armalequantity. The gypresus boies and istinguishable from engitalein w substances in not being so hard as to which fine with theel, the siffer from argileanous bones in him fiable after raffer ! The action of the fore smay be enembled to powder; This powder by the addition of water alone will intantly concrete " into ahard majo - It is the matter from with whices work is made - It is a velenitie walt being made up of ve The vitrolie and & calcarious earth. Quichlim oiffers to from it in this respect that it soes not with water alone w concrete into a haro vulstanu

The following marks distinguish talky bodies they und umhangeable in the fire, at least to a great segue; they all thuson incombustible; they are of a fibrous of oliaceous thrusture; they are not friable or duetile ill water as the absort! earths, nor and they so have as to thite fire with enjotalline earths. . Wase's when in a simple etate is hamparent I helt feurd & uninflammable - it is the basis of acefluids, & is an universal fluid . Distributed in abundance that all the hingrows of nation, but referred most properly to the John hingsom from it being collated in such immense in usewoirs in the latts. the sprear so . But when it is not so much impegnated as? my mineral or forie body anto be confit for the common to there of life orto give any particular toole it is then call of But when it is so far impregnated with those of vulstances as to have aparturilar taste orto be unfit for the common office of life it is then called mineral water

Housevery makes & Clapes of mineral Haters 1 Nijdulous Waters 2 Saline Waters

3 Surphurous Waters

4 Terrugineous Waters it water as the about carther, no on they we have us as White all regions in the chief and The pear to ming to months a it is the basis of warface to a on university find without in versioned they are the honoring of markers; but a fores most projectly to the has some from it in which which in min wind in the latter. the se is not sing the change I have it may the or en . Int when it is not a much income tow in minime of the feet with be wift for the stronger him the who is not feet was late it a her with The which is not in proposable with the promes in train a few trustes their only be in git, a comment for it is not come and

Part 2 d Of the operations of chymistry The qualities of bodies are the objects of chymistry & the operation of chymistry are the means by which the qualities I bosies and changed, vome devlroyed & other new one & The changes of the qualities of bories which are the effect of chymatry are see of them more by Combination or Separation . 1 all the changes of the veneral qualities of bodies by combination veent to repend on an attraction of discreet boies, whereby the small parts of bodies even retermine to approach mores each other, or in acertain point of contiquity to where together, so that whenever a chymisty is vaid to unite bosies it is only meant that he places those bodies in fuch incumstances that according to the laws of nationed the combination will taked place a chymical veparation of the parts of bodies or a wolution of them into their constituent principles is the disjunit. hon of concrete bodies, which takes place when the chimist applyed to a comp? body in proper circumstances another body which has a greater attraction to one part of the compound

in the productions of the x olu Ms. Frotes the security of some all its and the west from the same has tracker with it from an an attachmen the weell from the forces were therein 20 and other a the resident from the material war was princed a district 1 A so who want that if man have the want was to be desired the seal

than alexady vubrists between the comtisteent parts of that list bory, or when he apply s vuch a degree of heat ar to bestrong the conevior . The first defends on elective attracts; the last is owning to the action of the fire. * It is the nature of Tire to penetrate into all bodies, to place their parts at a greater vistance from each other; This in voted bosies is balers expansion of bosies by head. If by this medium the partie of hosies are so ontirely repair rated as to love all osherion, the more light evolately part is carried off by the action of the fine & is disported in the lin. When this exparation is only effected up far as to riminish the cohesion very much, but they while where to me another in which work that the parts easily recede on the least force apply ? This whate of the body by mises of in is called furion, as the vame condition of basies hen it takes place without fire or in the common temperature the atmosphere is called pluidity, but when a soled. long buomes fluid by the assistion of a fluid bory it is terms When the heat of the fine is so far masared as to destroy the cohesion a further radius of it places the parts of the body at is great a distance from each other as to be specifically lighter than

of illuidity Then are various opinions concerning the realise of fluidity - The chymiel philosopher he hiterid upon water as the course of it , but this is easily refuted , for the ster is found in mon! bodies yet wear not to impute their fluidity to this alone is depends on combination as water thelf is volid with adeque of col under 30. of examenheith Thurmometer. The corpuscularians therefore find room for their doth y they impute it to the whencity of its globales atterny as fall of as theother & those fond of chepm! reasoning hieroph in she wing what aweak doctione the confuscularians have cultilitied in trad of theirs . & in fact its not probable that Mufiguin of the partiles of water at 33: is change from what Maras de 32. yet in omdeque it is volid, in the other fluid. Alefoit, Then omesh he aparticular relation between to bodies before But how bodies require different segues of his to render them fluid is a Theory yet to helvolule. x Di Cullen thinks are hadies may be undered fewed comquently that fluidity is not aparticular but a general property of bodies or matter. Others on assepposition the bodies become voted by the privation of Heat imagine that dolivity is their natural state

Han the air, whence they ascend within in form of wmohe, or the body was first restored fluid or capable of fusion they wend in a state of Napor; this is owing to the volatility of not bries & is called exhalation. In the state of Napor the at particles of the body repel each other, vo that fin lefons the Thaction in boside so much as at length to change their Shackion into a repellent power of hence welker that the not effects of fine on all bodies and the fold is from the hat all of the fire all hories page thro the three chages uneffely of Expansion, purion & exhatation or evaporation in Inflamation being only a mode of exhalation Some bodies gant be changed into flate of fourdity by any heat we can give them! others may be made fruit en but can't be reduct into vapor by any art we know altho w believe they are all capable of patoring thro' the threw lager wone mentioned by power in nature if we knew how to apply them; come we know meahable of fusion by burning glafores or lenger we sid not know, vome others we spay porhaps he better acquainted with hereafter x as the action of the fine lessens the cohesion in the land of about, it is consequed both as a reparating operation to favour the combination of other bosies The reparation of different bories from one anoth: by means of fire is

in a popular problem. had stilled a set to shall be written as when I have been so to see the best on the best he which we specially good a long which ne 20 the first of the part of the first of the fi a we have reduced to the s 20 AND REAL PROPERTY AND ADDRESS OF THE PARTY AND 14

, owing to their being either fusible or volatile in different weef of Head, of Junich we take advantage in order to procure Disusion or veparation; Thus if to 2 lopies united wech ahead wapply of as will votatilize the most votatile or fuse the most fuible & never be carried to week a hight as to pure the test fuille or relatitize the least volatile of reparation will be made; Whis principle of bodies being volatile or finibly diff. requees of heat is the foundations of all chymical porations by the action of fine. Camp! Tuppose Sead & Copper were writed together in a maje, both of there are purible by fine but region very rifferent acquees of heat for that purpose; the lead being fuible in avery small Heat, but the copper requires to very great fight to fuse it; If then only week adeque of heat be applyed as will fuse the Sead, the topper will not be changed but the metter lead will be reparated from wown gut of the copper leaving it alone. This operation is often practised in veparating spetals from one another which may be confounded together in the warme bed. In like manner (if water world other be united together as they require different degrees of head to be changed into a state of vapor, we can take atvantage of this property to

the second second second second second we of shall shows in the arranges Some in expansion this of the Explice in Fire will be The Bar its distinct the mat with the mafine the will to I round to come to truck a highle or he find IG. when we retailing the day betathe of my warmer this fixed by loose him valuther of of hear is the Countries of all very new year 1500 4 the property le in now withy a per me in the solution if tothe there me finishe before her Afred entered week for that perfect a howen mut hat hel her sign and like to present it has not the let be offered a will fine the more coursed that his method lead in a, of the seption instead of 50 * Sales mil agunt nin volution in the same would never with and in the second of the first of the

sparate them one from another by Cahalation, if we apply in a segree of head as will votatilize the most volable only the alkali we will forwahe the water by ouch a heat & in in vapore; there vapore being cottected into a proper wiever are consensed again by means of the cold into a levid estate. On this principle we practise distillation for the fahr I veparating wine or Spirit from water, this Spirit may be impregnated with essential oils or the aromatic parts of worth we conside chiefly in their essential oil others fords us the means of obtaining many agreeable comple scordial waters by Distillation for the use of medicine. The action of the fine employed in charmity always produces a whate of femanty or whatation thus represter bosies or favoro a new combination. Mechie Thackeon requires likewise a state of fearthy in one or It's bodier ather by Solution orfusion before it can take place x So that if we include Condenvation & rarefaction under this head, we may truly vary that all operations in chymistry whether of perperation for combination may be reduced to the classes of Solution purion, & exhalation.

all the 01 do a contra de la contra 20 1 M. A. Parish ·fe fe a Ve Which which a wind 4 h le 0 9

There comprehend under them all the various methods of strong the qualities of bodies, of resolving bodies into hill contituent harts or of uniting Hem together vo is to form new productions of 1:01 Solution When admy vooled body in merved in afewed is swided into very outtile parts & universaly dispersed thro the whole of it so as to remain uniformly conjourid bous pended with the ferrid, so as to form one veekingly homogeneous fasid majo we case this operation Solution The any wooled body thrown into the fluid is called a Voluend. I The fefted supposed to be the dividing substance is cased Solvent or more com? The Montherum The term of mensheum & Volvend on early undertoos when we offer only unite a fluid with avolid body, but the chymits puffertly employ the term mentrum brown wen when they write too feweds by mixture If of Exercise employed the imalla is unwinestery Dispured the harger so as to remain uniformly conjoined it it & both together form afeemingly homogeneous mass the larger quantity of femil to with the other is added is called in menstreum, & thermallor the Solvens.

h. the state hes w 1 Acres Charles

When they are employed in equal quantities either of them may Hen is termide mentaum or Solvens indiscriminately however len the terms are respectively applight we much always confine welves to the vame pricise Joea to avoid confission: but fact then are means of retermining precisely wi is the contium properly & which the volvend, hit the considers tion of it soes not come in here. Solution is opposed on one hand to muchanise flurion, & on the other hand to mixture. Clay dispersed ; water for minimes is term'd mechanical differion. The union of bodies vo as to form atertain quid is tend hemical meetine. Talk dipoliced in water is termed Volution the body remaining in volutio principies . Bift in Solution bruicher the happens a Vaturation; thus we have it not in our power to dipole all in water to any quantity at persure; we comed ripolue mon Salt in water than about 13 of the weight of the water after we all the Salt that is add from? undipoleed. In this instance the volution is limited by the horser of the mentressen or nature of the Solvend thus when the water has dipolared all the Salp it is capable I holding in afluid take we vay it is asaturated Solution + call this the point of Saturation. Then is another hims of vateration which is berned a

12/1 . . . the word an ter women about the state of states of the que ast the are wine of atenning for sel Wa 1 in my man, but your his a chief in a standille is an end of no. a le set the alie was of white is no before also him you is it the dall to police on war il the whole person liter m ho VA h 1 p ai Belle in Break to Black the De Charles of le

Sunation of mixture which weater to the exact proportion hich lodies will combine by mixture & w. they cannot exceed In a certain portion of alhali viceronite with a reterminate wantity of a particular and oform a newhal will, inthe take we wee there is a Saturation we will not asmit of amign It any quantity more either and or alkali alone Chymical volution differ from mixture in not having a change produced in consequence of union in the Smile qualities of the bodies then united exapt in as far as a change arties from the differ of committenein the form of bodies is Sach dispolved in water is the vamu Salk it was before what the varme general properties. The same may be vaid in making of himeh, the principles of such lody enting into the exposition of the punch remain the fre the blinded as Sower Sweet &c: But mixture produces atterhium quid, though bory having new properties different from thou of its constituent properles as in muchal Salts, Depar Sulphuris by: Having thus explains the nature of Satutions funion & Cahalation, wheren in some intances how they an employed in producing changes in bodies, & Laving explained what is meant by monthwith voluend we are in a somewhat letter condition to speak of the defeund hims of athaction

There are thinds of attraction known in nature. The first is that of gravitation by we all bodies belonging to this terraqueous globe have atendency to approach the Earth's contre. The 2. is Mah hetween the Load from & From & is called the attraction of magnetion. The him is the w attraction of beliebies. These all agree in this h that, Mattraction takes plan when I'm bodies and shoome distance fromeast other. The 4. " is the attraction of Cohemon w. takes place when the has of bodies and in a certain point of contiguity & the in Electric attraction of "

plujo in chymity in order to produce changes in lodies in we have spoke in ageneral manner. This is a year of the greatest amportance in chymithy & ments w who Nattention . of attraction attraction is that determined low of nation or ower by which bodies or parts of lovies in proporcious tan smouth to each other; or liens in auction point of miguity cohere together ofform a combination. . athortion as employed in alignisty is either brotute or relative When two bodies applied to each other will unite vo as to form a combination & give a new production it is called attaction in general. when a lody as water which wheer an sugarmen to, or will not with another as oil, will unitalis. attind a alcohol this is cated election attraction vimply or absolute elective attraction But when one body in respect to two others will imite with either reparately, but mow rasily is one han another & in comequence of this greater readines to unite with the 3? body to is a case I Saffinity title not only prevent its being attoched to the vecond, but if the

X Or we may thus demontrate it diagramatically Corrow sublignment and mitración Ser man Song de la Silver Song de la Commission Salt (municario & mitració de de la Silver) Silver de de la Silver de la de la Silver de la de la silver d Case 3: Vitr. Tartar fight all. X Silver Jatt: when vinge Core St. Common: { vol:alh: veg: and fart: regen find fish alh: } reg: Ofin oitr: tartar with: and to case 3. menung Silver maid soll and silver maid soll and silver maid soll and silver maid soll and silver sianid polical and silver sil

first is already whiled with the frond will ocharate the first from the sound & unite isself with the first this is called relative elective attraction & will take peace when the bodies are put in proper circumstances is influidity. X When the body Aunitis with B. it is called Attraction. Ill will not write with B, but will with 6 it is called Elective Attraction absolute. 21 A will write with B& also with 6; & if AB, being joined together & 6 applied, I leaves B& joins 6 ih is called relative Elective attraction. On this is founded many envious operations All thegre instances we have yet given any vingle elective attraction, when this are only three bodies which are employed sig! a viryle both appeir to a might body in which we have a resolution of one compound & a new comparind formed, as exparation first taking blace & then a new combination. This makes it rediculous for chemists to divide operations vo as to treat of them distinctly as they an employed to orparate or combine since both there exects take place in one other fame operation. But we are not confined in bhemistry to employ onevingle body to produce a change on a migh; we may votten an obliged to make use of mixto in the application of which to one another a double resolution takes place & adouble combination whence it is called double Elective attraction. This double elective attraction admits of

Mourevoy calls Chemical atraction by the name of Affinity. It may take place between bodies of assimilar naturelor between those of a different matine. The first he eall the Afinity of Aggregation, The vecond the Afinished of Composition. Of the last he established 10 Laws or wells . It is extres vingle or double. minung. K & other The second second of companion of siche price find home within there esteep weet the form in 18 26 how how with theming composition is street he middle town of whomever so the tase the 3 Hope the months with allowed are in which it is francis on a course of Heatest by Sufacionist of the my happen as and in it interment securities the de adati limit ly and against a finition

four different eafer which we whate her indeavour to explain & illustrate. 1st When the menstrums in both of themists are employed as the middle term of comparison, & each of the menstress have a greater affinity with the volvends of the other ships than with their own respectively! When the case may be thus stated. mur: and mit and of The dast denotes the mereury & Silver & attraction, the tail of the dast whows the middle term of comparison which chosed first humentioned & compared with the body to which the dark points & then compart the fame middle term from which the dart proceeds with the body wherewith this middle term of comparison is already combined. in case the 2. we may make the two volvends He middle terms of coopparison. In east the 3. North the menstreeom woolvend of either mist are the middle terms of companion, this is a true instance of that double elective attraction in which the Separation cannot be exected by one principle of the nigh alone as in the two preceding cafes; for abody as the nitrous acide w. of itself cannot sumpose the compound committing of the principles ent vitrible acid thised alkali because they have agreater affinity with each other than it has set to either of talm, becomes capable of separating the two by loniting with one of them dir fixed athali when it is itself combined

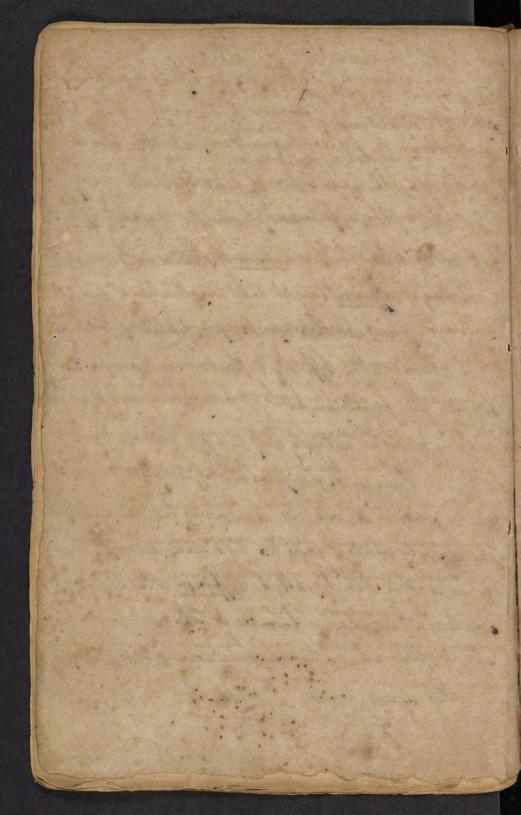
al all and a second

with another body as Silver having a degree of affinity with the other der viz: vitriolic buis buffients to compensate the defect of attraction between the mitrous acid and fixed alkali. In the 4th case the menstreum of one of the migh bodies is made one of the middle tentre of comparison & the volvendo of the other mist is made the other meddle term of comparison. In welling about to obtain new productions by Double election attraction it is our business to finds out such a body to operate with whose constituents parts, either mentrume oeven do or both have a greater electric attraction to either the menstrum volvendo or both of the contituent principles of the body to be sperated upon. It we might have observed in nothing with vingle elective attractions. All me have to do is to find a single body which has agreater attraction to either of the bodies already withted together than than they have with one another & these differ according as we wish to obtain the menstreum or Solvend in a separate state, e, g, en the case of obtaining the netrous and from nitro by melins of the vitriolic acid or the fixed ashill by the giston The two first cases are convertible into the thirds. In all the the darks may be placed one way i,). ne may employ the monstracion of one of the mists volutend of the same as the mital term of compaining new must do wo in the third case necessarly as it is

u to 9th and to the the minutes of the state o de en not take pean met ion Difelus. full the entirely by budantery infalled the state of the The section of the second

convertible into the 1. 42? cafes. In the two first cases each of theingridients in one of the mists is both menstreseem & solvens have a greater attraction to the volvend & menstrum of the other mist than with the yolvendy menstrum they are already combined with; & moreover in the opposite might lette the means trusim or solvend have a greater attraction to the Solvend & menstruum by the other migh than with the menstreeem or volvend of its own But in case the 3. altho! both the menstreum volvend of one must have agreater atraction to the Solvend & ment treeen of the other than to the volvend & menstruum it he already combined with yet we cant go faither way that in the appoints might within the menthreum have an equal attraction In the fourth case double electrics attraction dannot take pean without heat From the view we have given it is dident That bodies may be reparated from each other either by fire or election attraction; thus if Camphor be difsolut in Sp! Vini it may be extended either by fine or by election attraction. The fire is employed preferably if newwant to reparate the spirit but elections attraction if we want the Camphor separate.

The suspension of avoice body in affering repents on The general property of matter in! the verface of the hory surpinoes in the fluid being so much extensed on to be apple. throughout the liquon bromain in contact with every partiele, & the specific gravity of the two bodies not differing. so much as to onasion a vulsitioning. This is called muchamial Solution or diffusion. Chymial Solution Depends upon particular proporties is a cutam relation affinity or particular athaction which disposes the membruum brown to combine together so or to remain connected without any regard to this speci gravity Thus water will form this affinity at alcohol & he si polved in it, but will not write in like manner w? Oil. If by mean of agitation bil & water ever for a mon: to unite this state In called diffusion or michanical Nolution we will always be made to take place between a voled & aftered when a true empormial Solution seen Athanplans Let us now cornere a little what relater to the madein of Solitation - 9



In the practice of Solution the combination of the Solid oftened is affeited. The By the dienion of the Volucend 2. I By agitation of the refael 3. 4 But the application of heat 4. by By the appeiration of his as to the I. The division of the volvens Philosophers have thought that the athaction of boices is always coteris paribus in proportion to the quantity of matter, the normber of parts, & the increase of verface, with allows better of all the parts coming into a mon speedy contact. It is manifest an asvantage ames thurson from the division of the volvend into mall hatts The body to be dipolaced being would into powder will be easier athrited by the mentiurer as the pets brome very small & unhan of application large It is common to women: Massition of the Solvend by little slittle, hould the whole be put in at one it may fall to the bottom without allowing time for Solution the lower paid of the membreum in contact. It the Solvend will be vatarabled forming ahind of partition between

* eg commen Salt thrown into water my comment of a Company have Small is I in the the similar to the property of the second me tall the mander of fraint to the meaning the fraint when the past to feel and will a conand the histories a har it will be winn the leave you have now the house of the way the way the house have the second of the second of the

the two on this account & Then an diff! method in at bodies and wised in order to render them mon voluble - othis is applie to phomain 1 the Division of the volvend may be performed by muhamial impidre; as when the bodies and hardong w prable titure, louigation & electrication may be employed. but if hard what friable this Simation vincinion on used . In Anhuration of bodies the perte amortar and the most common Inthuments; thus the body may be wanted to apowder seemingly putty fine, but by mean of a Search or view the coance part is got reporate from the finer & in returned to the montan for further comminution. The fines powder this obtains has not been thought sufficiently fine enough for some purposes - therefore Levigation has been und fie | rulbing the power letween two hard bodies having polithed surfaces as on a common marble vlabra prophyny with another stone made fit to take hold off & to rub over to be to me the powder to be luigated on the marble with a little water to misten Who body is in thought to favour the lingation.

X Levigation being commonly made upon a Slab of Porphysy this profit is vometimes called Forthyngeation.

by This means orabs eyes startaceous pointers may be would to africe powerfu almost impalpable X Sometomis the rubbing asomewhat rofter lody as belonel & liginaler all in amaille of lap mortar In a purite to an impolpable powder has been eaced bougation of finest powder is ottained by Mutachion is committing the powder obtained as from as may be in parth & motor into water or other feeig Mak will not alter. it topstow or weaken it wirther & exitates for com tome to differe it prefitty, This letting the heaven coarses fort valide to the lottom - what remain confunde will be equilingly fine; decant it & lett it valide for some days & the fime powder may be got repeate. This is only applicable to week bodies as the water will not dipolese rule a hard trong or gritty bodies & Limation mean the same as filip, is oftenut english for the division of metals into small particles. Incision in the cutting of bodies into make pieces whether by mean of hnife onleipars or otherwise. Granulation le employed for reducing of mutats

by the many notioned blumaning friends from went to a from from the work in fresh a be combined the willing assentiched refin hery no that & lynolo which in a mille which meles " a frish the an injustable faller poister has their will ingolon the food for in others by the his sing committees the power delant so for so may ago for rection into water is other planes that in intil distribution or ansalose it is which a spilate for some there suffered before the taken the however were which to the determination where it is consist from want it will it was former It has former may be get a found . There is not a feller the the South Town the said when what he is a like I a sold war the way of the the second of the second spice of the second and the stand for the the the dead of 的第三人称单数 大名 人名美格 电压线

to grain or powder founder on the property it has of Linia converted topowder very early by hiter its perthe & mostar, if heat be applied to the required fusion, or the moment when it in passing from addit to alline from by funion, or from funion to asolid form; this we get the powder of tin & other metallies substances by granulation. Similar in the operation whereby whe or gura powder . is reduced to approver in when it has been differenced & is waporated marly to dayness stiming it about then with aspatula will reduce it to powder. Chymnal operations for dividing bodies are chiefly - Symtion & Colination, then englacine Eartho being made the short in the fine, by subterly exposing them to wild an broke soun very finely & by assimilar heatment glass may be ent by alone without the aprilance of assismind, six athead in vuephen, not it on fin & apply it burning to the glass, then underly apply cold to it will enough & break off as you serin; lituise by mean of burning chanced or a hot how glass may be cut. Calcions how is when abody may be about to powder. by the head of his orburing without coposition to the cold in order to that it as in calaining of Hartshorn &

the the self of the self of the self of the self of mi The state of the s 10 the state of the same of the s The Paragraphy of Manual State State of the in the feeling the frequency of new right The second of th de The second of the second of the second - wanted in the second to found . the second of the second second in the second the state of the s Company of the State of the Sta The state of the s Butter to his his wife of the State of the The second of th the state of the same of the s The second secon the second second and the second The state of the s

amalgamation is often employed & may be und to render netals fach ; heat a metal, from quitiler on it expend I with aspatate it will morporate with the metal and. under it hitter. By subsing merianal aintains on agoes ing or watch it will render it finable so that analis may be Iroh by aface; or a good ring may be thus easily got off from a finger much welled by it when amortification is peared or a van cannot be apply? I'm Willen was called to ayoung lady in this consistes to by rubbing agreemently of the continent on the ring it buaras fiell in ashort time blooks 2. If agitation of the vefuel. The wor of agitations in brose to cender the solution respect may be idodored visible; if to wal of water colored with Commence you are agreently of selection very constrounty ething thukh, as it were by Brops down the vide of the vial without the least agetation wit will remain on the hop of the colored water Justhout mixing with it in the least ogs may be ween veveral days after. In a week often if you here the vice the accord will write with the water Inever all be reposed again without some chapmical operation

Such marine a strong of hour hay he will all the and it in the bould from granting at by spirit it grades it all magrant with the subst. soules They we had inversing without on a sell ing a or is is will done it friendly or his walked may be to the file will no boin bear with our is suffer yo on a prize want with the it who assortface in a care o'a can come he affer It duttent was with to rejoin lary in this interfered to by inthing ingitionally of the our himsel or to it burnet field in site tome veneties I'd decidion the oracle. There is applicable of more in works the way down the strict in illust to and of a date ween much som also usuantity forther they care born of harden so we will be those the circle of the end how in dust weed seen to it air man so the s. is the private him the transfer of to come insent in capita, the analogical and the mind of the

If week lithrown in somall quantity into aglato of vater souffered to remain for veveral days abbient great het of it will be indipolated, but if it be agitated fondimes the volution will be quickly expedited & be very perfect. without week agetation the lower part of the menotimum heroma valarated o form apitition letveen In remaining Salt & water.

Some bodies an aft to herome visid before. volution & will remain convited for along time without the afritanie of agitation as prosecf is enabiren water On this account wand is often mixed is riscid lodiestale dipoeres, & agitation employed till the mentium has had time to exert it action fully whom the volvend. The 3. mean of apriting Solution is head This by acting on the memberson encreases the hower of solution as in the quantity of mite , frem: Vactor and vaceral neutral valts to be dipolocod in a given portion of water. But friquently of outs on the volvens or matter to he dissolved & injures it much orcholy destroys the qualities with me existed in the outgest ofor which the volution was wholly intended

and the second of the second o The state of the s There is a serger of fresh the series in " A MANUAL TO THE PARTY OF THE PA Markey Comment of the property - De la company and the state of t mentione house to and a single faction of it ex and the second is an experience of the second 10 h and I have in what he will be the said and a consider a life to be come it is 0 a sole of the sole of the color of 14 a mand, who is followed to be a the state of the state of the state of in the course of all and in the course for vi and the sight of the man is a strong on the V the many is not the whole with 10 The state of the s lead

a slight solution of Gentian is awholsom ofceaunt How list if by means of long rigotion, Decretion orgest sh therolution busones & nauseous theothel medicion . Rules to be observed in the application of heat. The regard of head much be proportioned to the menstruism esolvend. to process - & the quality. If we intend to school only the most fabrible hart we ment not apply whateat as will defrolw likewise the more instable hart hast this whould chargein wither oringen its 2. If the whole of the voluntists to be obtained but in differ segues according to the nature of the sucher volutions wwweld make, wanto comedenthe Limine of toplan of the different solvends & apply head auricingly, anot waste fail a we it consupparily. 3. When we operate in open vepels wantocom vider the greater or les volatility of the ment brien on Solvend; for instance of Spirit of wine or any Spirit before to abody to obtain its virtues & we april this will high we haved not energese it to such a regres or to dipopate Lift It we ast injuggrated with the Selvend.

aministration of the second The it is mared in signified, described in was The solution assers a marrier & harly it williams There is bookened in the of stranded of here Prises of his good he propositions to he my the grandity of wheel at the south who grately . It we willy is who the court parties have no make wing to is in the hole to there I he was nothing were in second was the wife makes wife. and the winter of the action of his house he signed a strip to the made and the has been of his different will wind to wife in the Service to make first or no it comments 3 the acopied in of in order to be a con bear with water that the most his one received a spirit of were or madelist a ste his well and the water to be the

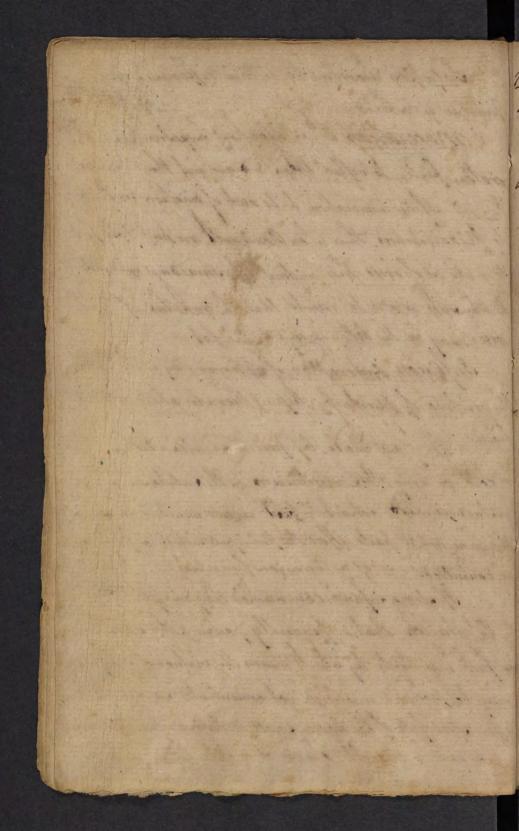
olution 1:2 I Sichin I She un il to the in his house with the last the corner and no including him winds 435

It It wespropose to retain the preunt quelities of the onlycet we must avoid applying out a hear as to give an empryeuma we not only destroys the wither we wish for but may gui certam qualitie which we whould be glad to avoid. The A . Opistance to Solution with explica non of air or whateon of air. all bodies have mon or les fixed an in them, as water being fut inger an exhausted uceser comes out toos bulbles & in hering latters operes the parts of bodies The an itself likewise acts as a mentionen in dispoling bodies from whene they become deliguement an is sometimes united to bodies in consequen of an election attraction, this often moents other bodies from joining till the line is extricated, then a combination will take place This fixed is sifferent from common air it news if we out from abody without the common air receives It as a mansherrow. On the curface of the liquor it may formate volution, for an is muspany in the Solutions

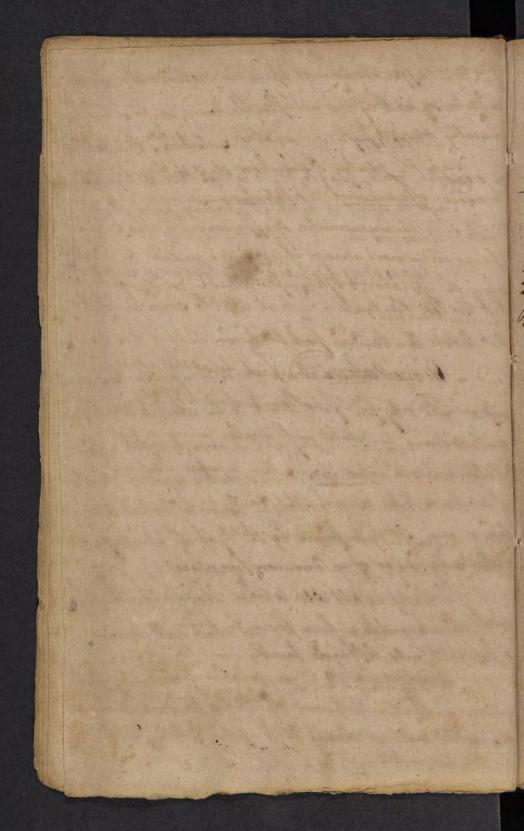
of many bodies. This is evident in the solution of coppin by means of volatile achali whif but logether inclose we fels for a whole month would not white but whom spening so as to favour the application of Roi they will divite immediately & absautiful blue colour will exist in comequence of this solution as in the lique in whising If much water be put into acopy vefel no mach of corrosion is even only where the air comes in contact with the very on the water . The fame happens when De ammoniae is added or vuch vulstances as is known to conose copyen, the corrosion only takes plan at the wing round the copper capiel when the surface touches it & the contact of the air compines. The best way to keep copies refels from reest is to heep them file of water, for the lie with them expecally when their is afrall quantity of water at the bottom. as there is an in all water so there is water in all air wenthe orgent with some bodies will othank from air 10 as to sur down by deliquism

A transfer of the second secon Maring the secretary the second will me with a summer little and AND THE PROPERTY OF THE PARTY O A STATE OF THE PARTY OF THE PAR and the second s The state of the second section of the second second second 1 in the first of the contract of the same of the same MARKET AND THE REAL PROPERTY AND THE PARTY OF THE PARTY O a confine auchies I have no go and A STATE OF THE STA The said that the said the said to be was and a financial property to the state of the property of THE WASTER SECTION

Solution according to cutain differences in the machin is named maceration whi a aforking ingredient in untov. wother place to volten them & diaw out their virtues. Semen refines moveration to be and of nigotion constinis. to Mickoulstances, Then when Roseleaved and hat init fat to make oil of roses this mitten is for some any of pored to the Sun in over to mainte that the qualities of the reses may be the better consens to the fat infusion inmethad of obtaining by volution the virtues of plants by theping themin abot or told. liquid The and made by pouring water whether hot or cole or any other minimum on the rullance whom where we were schart; but in cold membuum where The more vulle parts afford the puncipal virtues of lavour If whoma infunor an wanted they may to thand by Cohobation, that is frequently pouring the variation on furth inquesients by which meens the virtues of vining les may les procured unattered yet comentiated to much that afew spoonfuls of the ligner whall contain vierpring quistices. nor can a valuable spenu of moth likes or any



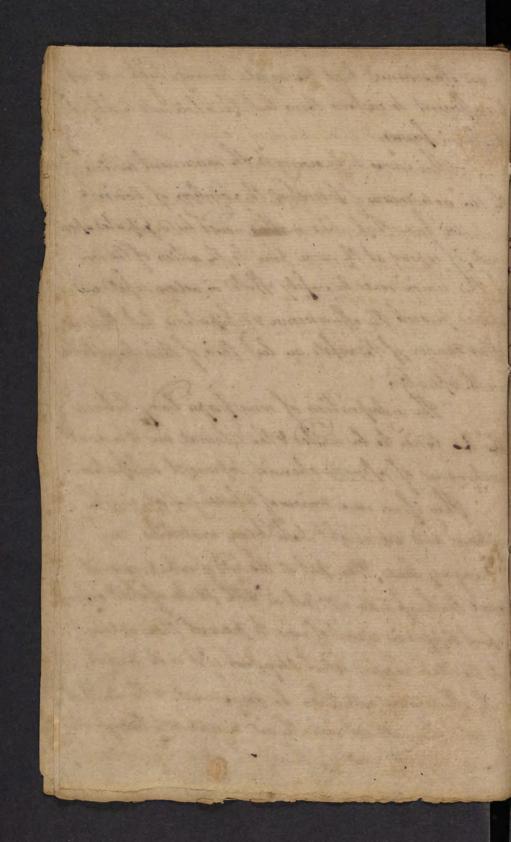
flower of a fine orniferous whint he procured by niet, as It may in the manner afore Said. Decretion is employed for volution. This pointies on vimples, roots, plants, &: to estait their mount on thes when the liquor is heft at aboiling point it is Disertion is employed for the varme purposed lut in Mi the head is high at on Musame height luch below the boiling point Circulation is an operation whereby the arm vapor rained by fine falls book to the returned waisheled vereral times _ It is performed in a wingle vefort stopped at top a called a pellican or in adauble repel is coments of two pieces tuted oneret other B lower to contains the liquor . - It is performed by the heat of alamp, of When or sand . or of a Common fuenau. Deliquer cence is when abody wan alhaemi wet athach marken from the air which will gradually sipolow it into afterio form. amalgamation is an operation of chemity for mixing quichsilver with some metal by funon or igniting the metal & arding menury to it upon which they mutually athant vincoperate with each other



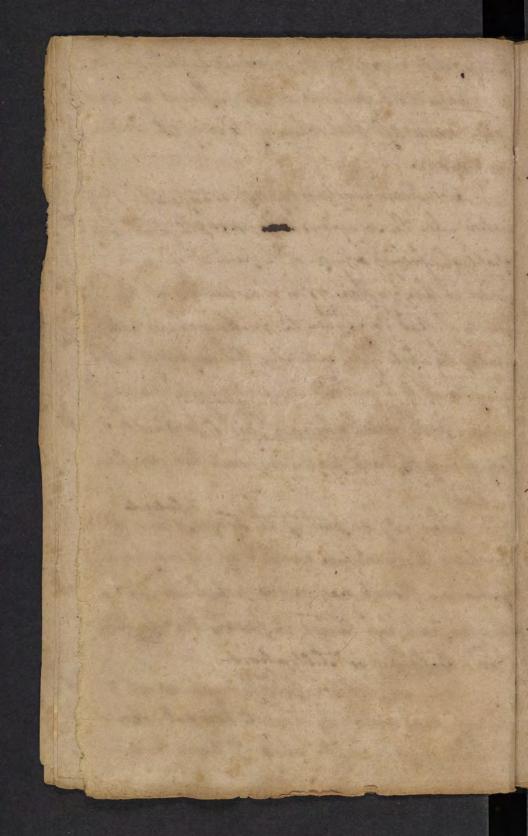
It is the foundation of the act of gieding toth in gold silver, . metals by this art may be riged, compounded and varethy blended with our another. In the practice of Solutions it is commonly proper to avoid effervercent & ribipation -It The imonvenience of efferencence is, that the Jumes an almost always of anxious quality & might injun the operator, & often inflammable 850 dangerbus to I It is a curous fact to observe that if to intiolis and in its mod comentated from he asses aprine of oron, A will remain in the bottom untowicho, but if the whiche and be related with water or iron be put into a related withiotic and it will then dispolar readily -On experiment might early lumade to illistration hoth the sounger from inflammabitity of a fewir & the noxions quality of the fumes. ass flings of iron to the vitre and the flewercener is that just vernible; if the furnes be incaretionally taken in with the breath it will greatly injust the person; & if the flam of spice of burning paper or a candle is brought so clav as to touch it, it will hunt forth with aflame I an explorion like the crack of apirtal.

formers to when here is a seal of me South the state of the state of the state of no intellegence of their second property and the second in the first the first our fine is the first of the state of the first of when with a strain with a will a Day to be the second of the second of the second and a supplied to the supplied Line of the thing down the war in the sale of the same per superior in the state of the same of the same of the same of Carlot and Carlot and Carlot come to warm out soon from the except from the and the state of the same to be and a state of some languest in some or will a All the second second and the to see his the set of the harder on in which is the part of the first the an work of grandeline by your factor to find and the part of the sent is no you made back street from the Marie A CONTRACTOR OF THE PARTY OF TH

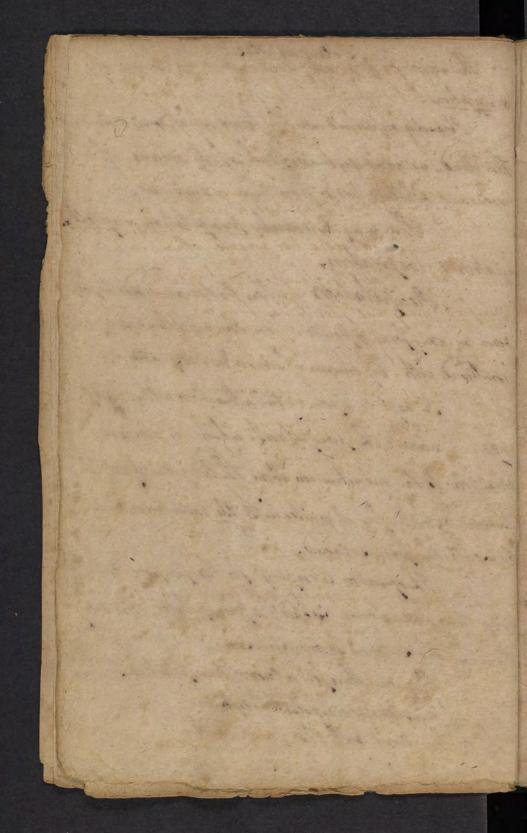
an efferenence that the wefel however high will not le sufficient to contain them but the whole will be others to This veems to be awing to the concernent action of the air as a means of promoting the volution of bodies !we know that where matters would be dispitates whom union, if exposed at the carrie time to the action of the air This union could be vafely effected in aclow we fell we should present the offerenen & dipipation, but then 4 often sanger if the repels are least their of their heing broke in the paration The interprition of rome proper body between the to bodies to be united & the esternal air is a good contrivani of afunde chemist. Toprevent sipopation. Then if we were durous of ripoloing Steel in the mitrous and we might take blong was like an hungary vial, then put in the said of nihe becover it some theihnes with oil hat in little plates of Steel orden first sipped in spirit of ine to present their ashering to the oil & carning down any part of it in it sevent, the efferment well then he very made the linthest is achiested will get into the oil & gramally though it in an inservible marmer, thus if the oil is in word quantity



the dipipation & use of noxious fumes will be greatly presented. When ouch spiritames are not cufficient we have of ther resource left than ochimney to carry off noxions ume evapour. Solution is cometimes employed as areparating Quation when the solvend is the mixt of membricum capable of dipoloing only on of the parts with removin whensed in the volution. This is are robution of the mineiples of hat Dody when the menthrown wier actupor dipolice the whole of the outstance the' compaid of diff! principles it to be comidered as an aggregate visided into integrant harts inter atertuin ghis is prosuid or 3? long of very different properties from either mentheum when only one part of the body is or there is or duend more than the mentheum can take up; it mayber jours by Anaming though was source which will not let the grofe fint profe through its pree , this operation i called Colatine or Thillration. when the find is outered to remain at with & The grof parts vulite by agenthe had inclination of Al nebel the fewed may be poured off leaving the sermint lebind this is care Decentation



The varm purpose may be amused by the use of Having replained all the terms which ower emder a Typhon. this head, we come next tookeah of the means of movering dipolied bosies from their membrua. This may be some by priorpitation, emptalls isation & Evaporation. Precipilation is when bodies an made tofall sown in any form or powder from the menthy a they are combined with by mean of some the long after. It sepens upon elution attraction with body asses is named the purificant which has a questor elhaction to the membrum than thetody decar combins thereith, & there for it comites with the mens hower and retaches the fish volvend. Thopastion is employed for this purpose other body this folling som is eased a precipitate, this may the other the downt or mentherson. Then an therefor blace of huifitation. 2. 9 of the second with the precipilant



3:4 Of the mentheum clone 4 by of the mentherim with the precipitant In the two find cases the ony body foliging sounis named specificate magistery, or early On Instand of If goes he dipoliced in liques regia, iron to the which ague regia has agreater attraction than it has to got will statet thingthe which from it greater specific gravity wie fact to the bottom of the Inhe crobition of Vilver in nitrous and, and to it muriati and, are paration is made as is wident by the milhy appearance, apowder face to the bottom wit is the selice writed with the municipie wis whilst the nitrous and visions alone. Of the 3 It goed be dipolated in the agua region and rituolie attend be added this will write with the gold dung of left y puiser gravity will remain at top which the former mentium the agua regia is presipitated to the lottom by itself. Of the I arriven body be diformed inspirit of win & water added this will render the mighten tieted the rain will vive to the top the newstrees with the body

any electric attackon, if Gold be dificted in municitie and a vilia in the nitrous aid a loth about together the airs interference of head by the substitute from an agi. Degia with wie different the gold but the vilian he aparticular attackon thursto with prespectate the gold, but ago the att of the vilian the att of the vilian trust and to rep it our person them.

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added thewater, will occupy the lower plan. Then is another intance of puripitation which may Suchaps lurefered to elect otherhon but that is not plans. It dennes therefore to be comidered by ital! If uguen of Antimony he dipolice in air it may be thrown own by water; But this sum to be oringrather to the wateres for wearing the mentherem or not to suffer it to hop the antimony in solution than the greater affinity of water to the airs as in the case of water puritital ing camphor from accord from the affinity between water & alcohol, for here the compher or quite reponded whenes in the former cand the aird is not entirely reposeded from the antemony, some part still remains athering to it the antimony is purification in form of a Calx. X Rules to be observed in precipitation. 7! The mislum avolution is to be delated with aquantity of water to favour the application of the body which is tothe divided for minima & as it is thought, to resher the whenion lutheren the menthreum Who body to be purpotated, however this he it vewes to collect the body to betterown Does & gues the better opportionity of making the

and the second second with the property of the same of the same continue dalance applicant The man had been to be wing for said one to experted the 1 and the second of the second where the same is not the same of the same and the second second second want are at the property and of soint of the soint in the 1 and I have all the law to be to be to be 1 Salvery in their is freeze in a glass of the second of the second of the with the was the way and something a state of the said of the said a first way in the second and the state of the said of the

asother by with slittle Mat it may privat efference ner saipipation of the 2 nul thurstone which regards the apply the purificant by slow deiques leisurely. 3 by no mon of Mepenipitant is to leader than what is muchany to oblain Me puripitationey? Then rules may be illustrated in precipitating the Sobethon of silver in nihour and by means of vol: alhali Delute the solution with aquantity of per water. add velat alhali by little & little at atime : any Aikon of well ousuon some efferenend, & if not made slowly the fevering fluid would be carried over the top of the repel, & every runceding attition inverses the come till there is a vaturation Upon continuing to asse the votable alhali a milhibels i produce & awhite powder falls to the bottom be much continue soring alhali their no more white matter is pringitoted withou leave off, for by adding mow volat alhali you enable the monstreson to take up the whole of the me the puipitate again

of money fresh the fresh had a 4 has which a reading to whole in the grant of This were good the Feel will a floor with hosting litiga i with mit gain will all State of a store of species of the with sall at a the said of the sa the section of ages of the suite A Sale and A STATE OF THE PARTY OF THE PAR a company was a first to the

This ruse is to the very much attender to is most rotutions of the metals in auss. The matter thrown down is form of powder is cours precipilate. magistery is atom given to the puripitate by the anxient on an enoneous eupposition ofthis purification containing as it were an extract muttum in pours of the very virtues of the Substance maisitated? But mothe least attention to the notion of the outjust where that the purifitable is one of the principles of the mist with formed atertisms greed & popell properties rifferent from it compon hasts balt is aterm und to denote aprispitate whi often colled so from it similar approvamento the porserobland by calination, but correct writers avail this term, in the puit pitating of goed we get it again in its pristone form. oblamed entirely pur bed often join's with and in the portunter form of convosion faid athering to them

was a so to be compared a state of the state of long of the south or with the of suche and market of them give hithe freezeward de Later I shall mines & of taken the hair 7 the south in with the way the way there is I seem to the way when registers of the fabrical francisco polatical the configurations that the pringerbile is on of the wing the med with for a relation of the standing le find , sporter biffinal our hange , as to the is allem and to beath when he will it is of his will it from the familiar appropriation to a and the form, is in faithful to be for my fill the i really writing by the first when I wanted the first wine in the second morning and the section and the second of the second o

them, but in bush aquantity as to unite with and vurtino the metal, it is then callo a Corrección the wolution not being comperate Whenever we huripitate metals by mean of Shalis agreeter orless portion of and achiers to bei thrown sown with the purificate of a corronor is mon mild in airid accordingly. This cornein ones not take plan if me metal is purificated by another, the unclusteon being complex & On a metal in cely in mon consuive arit is les free from the asheing and, we practice repested varhinger to get them quite clear from the anid that ashow to thom; the oftener this washing inspected the more mile the purpitate humer, bly apiguestice manner of expression it is termed more week; this operation Musion is calles Bulionation.

o the sind to himselven is miles , il is the colle a la man 4 h not have confermed in men muce in suigiful winty by means × On the vuly of constaling? on Book: Ch. voli p 332. by I perfect to be your we to write to and the second of the second or a make you will be good by the way of the Val a series of me to recover the sent on the 7 me of the first of the same of the same of the same and the second in a face the second and wind had been by grade for the said the said and the second of the first makes of the le . The marine since the same

Having outfinntly explained the nature of purportate show it is that dispolate lodies are acparated from their numbered by means thereof; our vecond whip is to consider wills the nature of engulalligation, whow dipoled bodies may livreinen & obtains reparate from their Solvents 2. by this operation x To understand this vulnich we must recall to mind that all vimple fobill latte whether existing in aliquid orvolid form as and & alhalim tath Sal Germon fountain Salt, Jean alt, Boras, nitro Eval ammoneau aweapalle of being distroburd in water, or in other worth, water in posels of a dispolacing porser whereby which it is able to sipoler thon bodies in wech a meanner, that when they me disolved in it you will have a fewid in which the disposion bosies whale be no equally distributed that in every part of the water thew whale be aproportionable part of the toliens. In the Sollection however offerted in this manner, that is observed a very quat & marmifold Discisity. The and south with and almost always liquid may be dipoliced in any quantity of water however amount on this of

a france out fine of the of the mother france with man solve a feet a look o me to parates from them where by mine hand; our come only in to co sie The in notion of englating tion, thow I feel loans of in mount a detriered expensed from the Solwarks * interest in B. Ch. 1236 when the Start with a series of the B. Ch. 1326 of the series of the serie which or the , or to the week, wall is me of it is newly former when by which it is will -In low in which a manner that when the is it is with a look is which he is it all the in war and with the less hat in our for au water murchase to af you tradely good The Rig in the state is and contain the The manufact land of the

al of withind will be perfectly diffolied in anochmoferation that all the elements will be assurately rivided & Tithe buts In the water in an equal proportion. But on the contrary the folil Salt that and a Aid form will not outfor themselves to be dipolared lexuply in xartam quantity of vater & no lep. - On owne of Lat Gene ecquires their ounces & how rames of free ditte I minuster to ispoler it which is in proportion as to to 13 when the comm. in is 30 seques warm - Mine deaching of pent withe aguin of ounces of the vame distilled water to dispolar it in the same heat. I after which you may deliste it as much further as you please, then being round to this This observation however must not be extended to Deminitals, and verimetalline partiles reduced by their and volvents into makes appearing whelin might heaftenears efected voisoeved in water like Sath (& true metals). The punt metalline part of regulers of antimony for instance is dispolved in the that aid of Jearlach that where to the consum Sublimate of mercury in the ripleation of letter of antimony, aperson would be

Je without it to properly significant to Best to to had all the same to all in moure by hind all the has Chicato in an wind postile But on the welvery in for with thet in of a Some with not on the themselves to the super stand rentani guarity of water & no in - En signi of was no copy is the owner has morns of him The the reminent Spice it would in on spection as I to 10 when the more 12 30 sque wome - Their suchmost fred Wike men is were of the come wither water to disside in the care wood of a which you wand think in and a present being from prosent so to the gives The december ourse made in the second to in the man sent and a west mines fine in the more is when a internation of the minister of many e to be the wind in water with the but south it. and without to the of water of winder a the Advance of the Mine while I will

be qually disappointed or making the experiment if he should imagin that this Butter might be sipored in water for as upon as ever the water coffee to touch it the volvent and immediately lets go the distrolved regular, mises welf with the water a given you again entirely the Same mitallini conoses ealy that bay conscioled in the Butter; this rule therefore is not to be carry'd beyond its limits. The dollation of Soll in water is soone effected ly agitation as we remarked before. again hot water diffulues a greater quentity of Sath for general than each water, that in proportion to the begiev of head you dipole Sal Gem in boiling water that is in 212 segues of heat the water is perfuty vaterated Then reshow the repel from the fine, you will observe as the water grows colder & colder it will contin I printate mon amond the Latt to the bottom. This concretion of Sall that was before dipolared in water is called the engetallization which appears from what has been vaid to aime, frist from a sufficient quantity of water being wanting to vilute it, 2. by from

Court might be were the relieved to The same that he had made him with the same to some new the about the house the terms The secretary to the go the supplied when the secure Think got the said of the form of the think Mary in so toly his in separate on the Pather In a to longered in the former despose to limite. and the sixther of which is in some in the The same of the same of the same of the same the series of water similar as the series to the second to the court of the I to Son of har har to the man man was at the second of the state of the second of mingles of the test on the same in a colo is a la contrata de contrata de ser a forma se

the liquor being at rest in which the walt is dipoled 3:4 from cold. For there and the inthument by w. enviallization is brought about But in My At place we obered further that the sipoling power of water operates much vomes upon on Set than upon another . Sal Gem is vooner dipolored in the Same water than Boray; and the vamiguentity of water too will dipolor mon of one Salt than unother 5. 4 Castly when water is roperfully votended its one him of Salt that if you add any margit will fall undipolard to the bottom, yet even the itiel weapable of sipoling a good seal of another work & that without letting go the former. Saturate for instance water of acution segue of head with Sal Gom so that it wont ripold the link grain mow & it will murtheles take up amale) quantity of nite , & yet the Gen will remain pufeethy dipoloced in the water as before - May & when it is thus valuabled with thow Salt it will be able to ripole vormethat more of another which is aphenomenon

to regard and about in which he all is the fit I'm from other . Ho then and had on a count of the in hillighing is longht gland on plane for the to of wind parts of water should rain were in the not then some and in dal from in some The a how hope and then there you have no specially water for when your many more house to have de los total and the bolis of the for any good to the return of our the ite a pain of some of grain such a brought in sugar Land of the former . explored in interior water of a motion was of him will the way a facility with should be were friend from me that hell you man with a self had been a second of

not a little censions in chemity.

In general this veparation is effected in virtue of bosics lang octained in whate of volution only in comequence of the quantity of the memotrum in which hey are dispossed. If this quantity be befored beyond the exactly the varied case as if more of the voluend was assed than the membrum is capable of acting upon, consquently that over proportion will assume its making form, which in valte and either the figures unmbling those of crystals where that term is to much applied to value substances.

This change is chiefly effected by means of waporation it sifes the montherism whils the volund having left volatility remains in the varne quantity as before. It repends also in alcfordeque on an increase of cold, for the most hast, in the retentment or another cause why a value body difficult in any liquon may again when itself in a social form: is whenever the mentherism dis not capable of diffolium an equal quantity

as a little courses in every have In great this reposition is effection I a what produce in what of water a for concurred the princhery of the members in the wife his a of this quality to when his at frinted a struction it is walky his wine is war of the colored a on a sind than the wine he applied octive aport consumally the morning come to find him many in some of the state of the state of the south of the This course in will find he was repeation it sit poles in mentioned the for the diames of the state of the said of which mostly as lifered the sense who is all well and the second for the med free for the no the way that the land of the sail on 1 1

of that loop in aided as in a warm state, for hereby the point of Saturation continually varies In order that Salts may be hept involution or in fluid form a certain quantity of mentioners is abolately nut loan, & that quantity varies awarding to the different seques of temperature or heat vests in the mentrum. Supprove then that in the ordinary tempuation the atmosphen three pints of common water will dispolar the of rear all & no more which is marly the case, if this Salt then dipolos be put in aproper glass reford speared over alamp fumered titl one half of the water be evaporated or apoint & shalf, then half apours of the vach will a prime a constalling form: by continuing the evaporation further the whole of the wach may be entirely uswered . His method is what is commonly practised at vact springe & at the Salt pens mear the deashore for making of wall as it is termed. again ut it to remarked that fany quantity. of nite led ripolices in a certain proportion of water so as July to vaturate that water in acol temperation, & then further hear be applied so as to make the water meanly

of that way in not now a warm . Let for the see " spirit of cherches commenty were en were that suth in a few of mornishers or a feed for a when prairie of mentioners i while done, I that you they make, me to be a spice usus of temperation is here been in the mentionens. Suppose their that he for which the property The time there have him of common with a single the in hear heart in the A Maria State In his for the spokes to find in forther the see spine the same france the sea ship the till the amore in the warmer the former the sail a mine a soft allient former in which is in injurious for the it is a lost of sur or a for the the inthis is not is an overly for the to frie to a the west from near through · min is at so the mines Chain to the under the a destruction of the published to be a self

or quite boiling hot, an aditional quantity of nite may be signolies therein. But on letting the valer cool again so as to return to its former temperalunt the additions wentity of onthe which was dispolated last will be again refrancted from the menstreuen brhoot out intelegrals in the same marrow as ever vaid of the common Saltyupon waporating part of the menstrum, & in proportion to the soule of the water will be the quantity of injutato. By the above are we come to unserstand how it is that evaporation is employed on aseparatory operation a verer difoloco bodies from this mentres & plainly understand that engetallisation is performed by aminishing the mentruum & reminishing the head. It equal quantities of nite beammon Salt were or policed in agues portion of water, they might be veparated from one unother by alternately waparating buoling the menotruism - for common Sea Talk will dipole equally well almost & nearly in the Same quantity in colo water as hoh, which is not the case with nitre; hence by

too fine in the A for a power the soon, But my little of the contract min of the days with from his property the wind I will be for the while was to fire a blood of the war to regiles from the majoritarious remont note that I 1 who for how from the said of the committee while 4 begins that I be derivated in the first in fine he demination to with Granity of ingetion . he In all the for an come in wall and and W inspection is amount in authorized on their Th of relieved to lies from the mording to please they were alwaling in July in approve Va course the which for met a I want person the water to were the a so a thing program motor plad goods 1 Just die mother by attended the continue 1 Some for evening the first to 4 with a single property of the first house 14 when the state of the his work

by find exaporating the monthicum in a certain proportion the common Salt will whoch into injustals But when it is wo hav evaporated that the with can be no longer hits in solution let it cool with ingestals may be extracted whilst the commit walt soes not send forth my more engetats. when all the nihe their obtains is repeater hat the mentherum again sproud in the exaporation which will oursion show common Jalk to shook whilst the nitro remains in volutions. When this begins to shoot again remove the Salt Then oblained blet the nite engitalline again by woling the liquion as he for . By proceeding in this manner a complect reparation of the two valle may be effected. as cold promotes the expetallization of Valts vo The copolate shew themselves in the quatert penty in the part of the refred is is most expined to the cold is may he proved by an easy Experiment of infoling Mite in warm water to valuation & exponer any hast to astream of core an or sipping any cold body with which engladining.

The harden to be designed from the designed by himmong the iterior the property is on he is more his mountain the start is by your may his of head of sold the separate all some wet feels one grow infertage. at the set he wish him black is a from the we the mentioner witin before in the west or two his wall in war whom reminer walk to whom with e mete inverse in columns. the time hear to shoot warm residen the I'd a thing that the with explication again by which was in the sale By precising within marine a confirm grasher of the the soil may be affiched. "The we promote the way allienters will a explose when themselves in he queted to fait the wholes, is not enjoy to the dear -Expend of many Experience of Spring 18 to 5 morning to the softent to affect the to the sold to be sold to in affect on the surprish with representation

Chemical resels employed infolution. 1. They whould be of with a clase to town as to be capable of hoeding their contents & not letting them hale through their pores 2 My They whould the made of viets matter as is not liable to consision by their contents: this excludes metals on many occasions. 3 dly They whould be of week anothere & quality as to hear the necessary heat office to be apply'd Glass answers very well to the first requirete, as it is not fuely pervisues to other lodies than light. It likewise annuers to the second fortention of not being vulged to conosion from am menstrum werget know of if the glass be perfect in its hind. Butter glast is made up of different material, it is more or less pure, and impere glass may be conoded by some menstrua. Glass refrels are limited by the Rind rule, as we are precluded from the use of them when week a great heat is necessary to be applied as fould melh glass

4 they is another Spices Care to have the training white the start in the case of the second and the water of appearing for when you is a on great of of all he food high an Come the Luce who is the best for the first animoral de l'anciente de l'animoral de l'an the tent of the same with the second 14 2 2 2 11 The way to be the same of the said legal and applicage the east open it or significating by me for 14. 1 the second second second second the state of the s there of secretary was seen as well a feet The state of the s Mary of the party of the last of the last of Marian Control of the The state of the state of ARREST TO A STATE OF THE PARTY OF THE PARTY

Orcelain has the advantage over glass in this that it can bear a greater fat than glass without fear of fusion, it is likelise of a close taylike & not hable to corrosion. But when glass will bear the necessary heat it is to be preferred on account of its transparence whereby we can very how the operation goes on which is a very great advantage as to the one of the retort and receiver they are notifyround with a out alcowing whom for thefumes, as they are common the form it well known. When no heat arises from the foliation nor effensescence isomay choose what shaped reflet we presse, but when these ours we must have length of nech to pormit the vapor topass off & the solvend must be added by degrees. The Matros is used in this cafel In common the Atthe or Boll Head & Digestor are used.

Proceedings has the some to person in this that it can hear a creater that then shall william to fear of Justion , at is Chathies of a dion left his & not care to way might. Over to be my fall for le hear his na they heat it with he he present mount of the transparent will will be can vest how he shouten soes on which a very great a mantake We to the war of the whost were w care here and a shelication will a our t account of was for the lances, as are comprise the form it will be sure Then no heat a ises from it will were nor affernaceone cacionas chares chal That we feel one freeze but when they ment we much have levely of as I he himsel the winder wind of the time solve it town to write Million to passe the state of the residence

2: Of Tusion The funcion of bodies as we vaid of fundity in general afforder us an apportunity of uniting bodies together or of binging about a vegratation of the parts of lovies peritor together into a compound or whist When voled bosies an undered fluid by the assistance of fine, for the rate of producing any changes therein, that what of fluidity thus effected is aplited a dry Solution . But when a state of fluidity is produced in any volid body by means of a prentuum that is of itself feind in the ordinary temperature of the atmosphere it is called a humid Tolinon ! Lusion veparates by elective athaction, that is pusion fut bodies into wech circums tances that a change may take plan in consequence thereof, by mean ofeget attraction & asseparation of parts for a new combination may be thus effected. I when to avoid comple lody in astato of fusion, another body is added which veparates on faul from another by the vame hind of principitation as takes place in the veparation of a ripolated body from its mensherem as in obtaining the reguline part of anternomy by applying and protected to it in a state of fusions bil The state of the s White has the state of the same the same of the same o The state of the s

is called precipitatio fusorial as the other is named praipitatio humida. Thus in the 20 table of affinities, Sulphur is comidered as a menstruent that is expette of repolving sumling with the verseral vulstances othersing under if & the affinity of each, or power of attraction is autory: to the order in Jehiota they follow one another, Therefore I Sulphur he united to the regules of anishony product. the on or existe artimony of the Nope, the regular may be veparated from it in a state of furiof whe thrown down by any of the entitlefacces with a tond above it as Silver Vin Lead Copper from fix: Alt ord line The precipitate or maker known down by this means in termed Regular & is the metalline part of the The matter which is thrown upon the our face is ealled Scorie. In the foregoing operation on ende antimony wel observe on the top of the metallion principitate a stellar appearance or pasigure vomeshat like an antique Grown from whether the whimsical name of ugulus was first given by the alchemisto to the mitalfine hard of antimony with name vine has gradually extended to the mutalline part obtains proof the rest of the ones

1 the recipion of the same for the 07 1 Mingal . 1 a All the state of t 4 granitation of the state of the . 0 中的一类为是各种的人 0, 6 1

lep: To Separate antimomy from its one by Take any quantity of white From whis From in this plates covered with this; commit this to a crueible or antimon! Hom, put it in apromace & let itain? then tell it becomes red hot; then add ande antimy; in powder stirring it about with an Iron rodather a while the veconice will rise to the top who regulers of antimony will fall to the bottom being of qualer vhuitie gravity than the sulpher & From now united together by elect athachion. The regular may be easily expanded from the above by afmail whohe or two of ahammer. As to the form of acpelo made used in the fusion of rifferent lovies; it riffers anordiff to the various Inature of the vulged to be apreated upon. Verotherise) I in many operations of Solution of fusion the refrels may be left open at top, in others they mush It is common to cover a bruchte with a blake or the to prevent any thing falling in ouring the operation huh its mon common to make use of another crucible inverted & alittle smaller so as to life let alittle way within

In repels made use of in ordinary fusion of meipitation & funion an called, Crucibles; then an of seff hind of matter part to the nature of the vulget to the operated upon -Sometimes they are outabled, his most commonly they are man ? of lath; of who then an two principal hind 1. Latty called German or He frian Cruibles . 2 ! blu crueibly or black lead ones of diff! properties from the others -The former and the chiapert - The vhape of civilles someth of usembles a huncaled corn whose base is presid into atriangula ; from for the quater consenience of pouring out their Gontents into amold. This with limibles almost on the Glass up they an wooner brokely fin when thich; but ather circum! require a greater thickness. On Test in latin patella venificationa is und in Jen. : fication when the viorified matter is blown over w : apoin of bellows, its whape is marly like that of a cupel

the upright crueible whentams the matter to be fused in a selection of vapors vining from the body. the management of the funion varies anothing to I the rules which are to be observed that what to the weferels are, if it has imbiled any moisture she detenly & all at mw committed to the burning fuel it may crash & break 2. I should not be let sown this the fewel so as to west on the grate, least the wheam for cold air rushing ut this I he ash have whould Imbaun the vame effect; to avoid this a pedestal may be employed for it to read upon, as another inverted encible on In a brech . The vegree of fin that is made use of is to be varied according of the nature of the different Modice. Both the vefoel amountor (if it he ametal) expenally should before the operation have any moisture drove of we they may have contracted from the air or otherwise, & whilst they are placed on the find can much be taken that no aqueous humberly

April 19 miles X migh metals an expande from one another in to is comequence of their villerent seques of furibility, the if Lend & lopper be combined for explaining them to aver to of hear the lead being the most furble melts & upon from the Copper - This operation is called bliqueste antimony mereparated from of minerals by the vami operation. Gram: tom: 2. L: 219 233 Conselation is vimilar to the above the verningly the reverse, as the reparation sepends on the different seques of head necepary to fire them or to hear them in a state of floughty. The Vinegar being comp? of water other autour dies in any le vegranted from each other by this mans, for the vateris congent able by 32. of cold in Tahrenhich Thorn: whereas it preguir a much quater deque of cold to congeal the acid; if then you in Vineg do to 30 pegain of edes or flith mon the water congests My and remains fluid & may be expensived from it of this is of the weg; and without achange of it qualities ____

approach them, for if a few orops of water for instance should audentally fall into mitted lead or other metal it would be known out of the vefsel w. gust force & to the no small retiment of the aperation Vometimes a sephation takes plan in fused bodies in consequence of their different when fire growity the havert bubiding to the bottom of the welfel & A Comial mold is much used for this purpose that the reguline wit is often in a would quantity may he the opone easily collected. The one made use of commonly in veparating antomory from its on the composed of Brags or From yet from it whose is generally ealls an antimorial home. These vefsels or molds an also directed to be made as hot as the Initales themselves, in order to preserve them the longer in Jurior , with favore the reparation the better . . Of mits likewise generally quare the imide by exporing it to the flam of a lamp breandle in order that when cold it may be got out the more readily. The funion of metale is of two hinds, the one is common, when no other change Loppins than that they an reduced from associal to affered estate & wet bring suffered to cool again a frum the vame appearance & consistion as before I In the other hims of Surion there is vogreat a

and the state of the state of Sand to the state of the sand The second of the second of the second to bear work of the finding that I want and the state of the state of the state of wing the first the same of the same the state of the said of the said C. Landy & Black and 20 Land of which was a little of the land and the second second School of the State of the said A STATE OF THE PARTY OF THE PAR websited who were to be to

so great a change produced by the action of the fini, that Spon cooling they concrete into existerent hind of make wh is allways the vame vist that of likes this hange is called Vitrefaction & lays the foundation lost two vots of operations in Jenification & lukellation There operations can never be practised to avantage except on large quantities of metals at a time. I as the withefaction of metals is only performed as a veparatory process in consequence of the different witheveility of metals, it is worth while to coplain ritefaction in all its stages, & to know what subjects and most vistable for this purpose. Gold Willies and not capable of ritribuing on of being connected with Glass, by the most intense hear of a fuman; whilst all the other metals, whether along in areparate estate, or joint with Gold Willier on capable of withefying by ouch ahead & hastimlarly lead which fis one of the most witheseible of all the metals. Lead is likewise capable of promotoring the richefaction of other outals I thouby repaiding them from Gold willer. If Sead be put into a refrel call a Tartoplais over the fine in a ferrown you may precieve the following an formed on the top & on then thrown towards the vides of

all property and any angle ter Marine the second of the ways of 1 to profest thing many before The because the Mysics Ship is be templished the m les was done from sugar some to the said The the state of t res a inches the property and contract to the The the of withing it was the out is and the same of the property of the same of and the property of the sales of the sales had Samuel of the state of the same Phone with the said the the wind and and a second and wheat the with deal was the 20 ver by les En 0

I the vefsel, The centar of the lead appearing in the miss! bud bright of mining like aliminous vive: the lead Il then begin to foil & emit fumes, new pellules automis me after famother somestively broke & move to the vides I the wefsel, till at length the whole majo, by little & little is converted into pellicles others into Lithange on The pellicles thus found on the surface & purhed to he vides of the refered on terms Scorice of the operation is named donification. By unging the head whill further the pullicles " Serie and affair metted & by seques converted into glass, this ist whate of withis lathon x in consequence of these properties, Goldtribuer may be perified from other metats or heterogeneous matters whering to them. Thus, if Silver he origed with Copper it may be reparated thee from by Scorification & vitilication afistes by Lead, & may also be separated from its one - The lend life oliving the Copper & writing is the one of Tilver. The lead then verifies & while's efective is not either Silver or Gold when the Silver is disengage from the heterogeneous matters with which it was united. The feorite an vometimes blown of from the test spain of bellows.

gent the with the thirt will be seen · od to several to in the president things 100 Marguer vol: 1 / 3/6 Brain Straigh wes marifal your come by minde in The sold of the the the second of the second second & a Capel riffer title from a Tead only the bottom is much thicker to miss butain the vitrified matter in its vulstance & prevent it raning thro into the fine who would be inconvenient. th

matters being brought to this pape, take the textal?) pair of tongs from wopen the muffle & pour it whole contents to an elon come first heated byward with tallow. The hole operation lasts about 3th of an hour. When all is old a blow with a hammer will part the regules from the conia; & as it is not possible how perfect forces the Scorific cation be, to avoid leaving a title lead containing liber in the Serice it is proper to policine it expands therefrom whatever retends under the hammer to be added to theregulars. Carrying the operation to its fullest astent the intifice load what is united with it being neither Gold nor Silver human so valtile as tonen through the pour of the closest refeel leaving the Gold wiled behind in the bottom of Cartuilar refords an appropriated to this propose The refsel by themselves. having a flat broad emface or bottom to hallow rider like a saucer but of a considerable thickness; There repels an to called Eupel's the speration patorns by mount of them is called Cupellation. It is proper to add I parts of Sead to one of One the vo much is not always abstitly making especially when the ow is very famille - the sunds of the spiret of chiefly separate on the confliction of thousand money

and the second second second second The same of Bearing the college and week the for 1 to conjuly educate at place to continue and the standard of the Standard of The second secon V. en the second second at I is a verninglindical refsel open at one end with windows thro' with we may inspect the matter The property of the same of The state of the s A CONTRACTOR OF THE PARTY OF TH

mon Lead than enough is attended with no inconvenience for, as it always promptes occupiation it can never soamy mague: uls & 310 The previous roasting the ow is a meeting week toward facilitating the operation; the bood vhape of the refeel with exposes the metal to the air by a broad surfaced experites the calcination. The bottom of the vefsel is thick to vustain the wight of the well bit is composed of a matter not theseible thelf, but porous the Althe withified matter may the most readily pap thro it for as the powder of bumb lones the cupil whould be large enough to contain the whole matter least by respine orger any part of it be lost. The muffle is acovering to the Test, but vuch an one or will not hierder your veeing how the operation goes on x Vitigged metals by the assition of inflammable substance, sparticularly of Charcoal, may be milted again thus be bot back to their metallice forms. This operation mitals is called reduction except when performed on Quicksilver for then its tormed revivification.

4 more than a large of the same of the same out of the second of the secon go by and the second of the second o Commence of the second The state of the s Mind Alexander Land The second secon A STATE OF THE PARTY OF THE PARTY OF

upon this amount a muffle to cover the cupelbumes nue pany in order that owing the calcination withifiation going on, it may not be impresed or the metal reduced by means of its contact with the burning fuel.

the of a course of the water of the safety when it was been been it is considered the water in which was one in may not be injusted in the mint were of man of its coursel with the bringing just ? 1

3. Of Echalation The third head of operations is known by the Term of Chalation all those operations w. an employ à to produce a change of the qualities of bodies by exhalation perform that lefted in consequence of those bodies, or certain parts thereof, being convertable into a vapor by the action of the fine with volatilizes them. There operations are distinguished from one another anding to the intention of the operator, as his design many he to obtain the more fixed or the more Matile right of bodies to the first interstion the volatile hard is nove off & wasted in a state of vapore. anording to the second the more volatile parts an collected by a proper aparatus who first part is regarded as useles. when (but intention is to obtain the volatile) parts; we confine the whole matter in close wefseld that the vapor may be consensed other recodered veparately from the fix's parts When the fixt parts only and designolow offains the operation is performed in open we fels in order to raise off the volatile parts in a state of vapour.

The state of the s and Carlie and and a Company of the Whatel Colones H I between the window of my and the in more of their hand of much her winds in and the state of t of more of forms to report in As the waste of the property of the the state of a graph of The second section of the sect a room to dead a last or the way of my of The state of the state of the state of Property of the State State SERVED BOR COM and and what where I ! The state of the state of the Lawrence of the Work of the Law and In A STATE OF THE PARTY OF THE PAR

These oferations and further Distinguished aurosing on the outjects of them an fluid or Jolio bosics . When They and feeled bodies the operation is terms waporation but when voled it is call Ustulation when the operation of evaporation is employed on the nature juices of vegetables muchy to Dieve of the thiner & more afreoff parts in order to increase their two thereof or to render it capable of hing pursued better it is named Inopiforation But when the placeds which we espose to exporation, lunder the native juin of plants, contain somewhat of the mounded substances with have been mixed with it by recoetion & riger tion; I vay when from a Volution of this hind use rive off see the flaid part, what remains behind is called an Echael with operation itell is termo Behachion. Hading we plain's the terms that own under the had of Rahalation we one must to consider the practice of A. The uparation of the more volatile from the mas fixed parts of bodies ochends either on the action of the air or fine, or of both.

* The first effects of head upon a world body is to report & remove its parts to hageater distance till at length it here find - further agreed on it produces Vafifer which we unknown to be an elastic fluid with wheads quagueversus lust heirs of lefo which growing than the atmosphere: I must vive in the and from alacs of hydrostatics.

vapors arise differently

as heated. Air bless coments ingenspension of bodies siffused in it & not dispolved, by setaching the parts on them is in consequence of their differential growing.

Understand? There I things yould understand the way for the conducting of Evaporation.

Rule 1. Evap: is efficied by soponing alarge verificants the air.

2. The air applied is to be renewed as hithly as possible.

3. The Evaporating is to be Juguently agituted.

chan "The action of the fin expanates the parts of bodies hum buther apolt; it converts fluid booies into vapor by enun the application of greater & greater degrees of beat in vuneficiely from the gentless to the most violent in appropriated vehille, so continued as to collich what whales from them, the principles of bodies augradually reparated from each other; the most volatile rise finh, with west follow in order as they come to be noted upon by different seques of head; & this is called Distillation. The air itself at very powerfully on bodies as a menstruum in difolicing & taking up parts thing is on the earfant of the ocean: It is capable of saturation track mon or less powerfully as it is further from or approaches marer to the point of Saturation *It is also encreased by hear & siminished by cold! many operations can't proceed as they ought in whauto ruevers, the present of an ling necessary to carry them on. Towards the end of all operations in close vefsels which are then really exhausted of their air the operations an generally utaised by that cause. But if amy

But Charles Bills Sea of the second second second second Andrew of the morning of the Blood of the desire of the same of 1 of here not spire would be as here to Ve The land the of Sold of the said and he the March of the Wall of who the section of the a with a land of the sea wife the the survey of the survey of the transfer of the section of the property of the section of the section of The war of house white win it is 4 a design in section of the state of the section Note the Development of the Committee The second section is the second second

contrivance is used whereby fresh air is let into the refree the operation is thusby approited very much. air acts mon powerfully upon vapour ara ment. than upon water in its common vlate: so that volution soes not good so well tell it heated to the boiling hoint. Fire then may be considered as a previous & auxiliary I into waponed which is the proper condition for the air to act advantageously on it as asolvent In the vistillation of the vitible buid if no unch on finds apaleage into the refeel during the process the which and then obtaine will be in a fixed whate, but if and be amilled towards the end of the operation, it will then afford us a vitriolie and in a votatite state, is was anitority discovered by Stahl. for during the rithellation of whichis and his apparatus happened to be esseld & let in the air. The effect of this being one observed, an apparatus was afterwards provided with whole drilled in the Glass & stopped up with a peg so that it could be opened whenever The operation registies in order to under the aid volatile. We beam from himed that the action of the air

I openior that aprilet my in mo w in for sails desirable to per year of on exer want on it commented in the ne as les on voer rel you vo well till it race to to by and then man to considered a. m the wholes when it is the free continued in and included in the se recovered the re the motivation of the whister his 00 to the species with the water the fire pa and him withink with the job referred believe . 0 which given the contract the operation of 00 a returning the intelligible with and h ed he alter for danis de cities ? 1 of a residence superinter on after of the same was alway to a some u spirit from the said the said the said to have 0%

as an agent as well to favor & promote exhalation as to frocus adifferent exhalation from what would happen without its concurrence, & likewise that it assists in the resolution vaccomposition of bodies by its affinity towards, on Martion of vome one or other of the principles of those bodies. It is often musery to limit the action of the fine, least by burning the cubstance it whould affect it is an improvement as the thiner & mon aqueous fluid first evaporates by head in the inspipation beataction of vegetable vulstances what remains behind burning theire of thicker is more liable to contract un empyuuma unles as it thickens we umoul part of the burning fewel, organizate the head by unffering only a certain quantity of air to hap this the fine at atime or by the interposition of webstance that will present the head vining about a certain determined deque, as in awater bath orvand hear be It is to bu observed that in volatilizing one port of a migh we whould not employ with a head or to alter the nature or destroy the texture of the fixed parts that an tolelet whim? When abody is made up of parts, Different seques of heat eunefricely an nuchary to be made use of in order to obtain those parts reparate from one another whether we

Valle of the rift! seg! of heat it contitute the loiling point of rift! Alguers has been formed by vome chemisto

want to obtain the volatile afried harts. When we wheat of huping up the heat of flinds to this boiling point lit must be understood of homogeneous Jando. For in heterogeneous feinds the boiling hoppin continually raying, for as the more volatile parts fly of. quater head is commantly successions to hup theremain? Monieur des amantois in the memoirs of the enjal andamy of Soieness informs us that him aterone comes to boil you can't afterwards make it grow hoter, this valuell Dicarenj is horsener much improved by the beny curious observation of the industrious Tahenheit for he has found that the heal of the vame boiling water will be constantly greater when the right of the inumber of atmosphere prefer havior upon its bunface & left when the prefound that is lighter. In the mean time it is certain that of long as the phonospher continues the vame, boiling water will not grow hother by any increase of fine whatever. In alighted atmosphen the boiling point is Lower, in sheary scompressed atmosphere it will be about 212 of Takenheits thermometer -Under the ruiever of an air fromp place a gloss repel full of water blated to go. & gradually orars

colons is within a first rach to feel by the form for his feel and the to the point lit much be surrestered with The for in heliconfront faciles the toling for facile it roughly for as the me will be found for all hear is commenced and person is high trains had so boiling points. Thomas Ing domain to be now a to witom of some informs on that about the to a list you was a please of bout it give before things were a compressed by the fory or never them to acceptant recognised for the point of the to the lating a rate a call him when the grande is the the The some stook almost live pulper him well location the hise well attended in at the hast at tong in In himself in a section with the ort of an settle by any major appear , on assigning a proposing the best from shear a whop about the it will be so

out the air & yould evidently puriese an ebullition writed in the water as the prefound the atmosphere is befored which will entirely disappear again upon litting in the air; hence thurson by a Barometer fixed in the Previoued you may be able to retermine what segue of heat is muhang to make water boil under any fairen. weight of the atmosphere, by this means welmay come It an infinite number of haut ful discoveries that we aw at prefent imagicainted with & Break: US 6 104, 103 Then is one thing mow on this made woth mentioning. If water be put into papin digeston of the included an be stopp up with it in week a marmer that nothing can possibly come and with he made to boil; from the compression of the air on its versace the water willrequire 30 segrees of heat more before it boil; no wonder then that our prodigious effects are produced by this machine. Evaporation is mortreadily pulsimes in open nefsels, when the liquor is exposed to the air by a large surface, expuially if it is suretted upon it in ashe in continually renewd for this presents a Saturation of the an ara menthusem which takes place in close vefels.

* Calcination overnot depend on the exhalation of mon volatele hasts alone, for altho we wee fumes and & Dispipated During the process yet there is often an enue of weight as in calcined Lead - this weight must be a either from the fine or air . The latter is ofreited as we as told of pappens in close vefsels. Therefore it onest for from the fire, not the gross matter of fuel as were told it happens by hat commen : by the rays of the collect by abuning glass, hence it is a onabler that ausopanies light while & on this is founded M. Ora Spay of the ponderability of light ofin . So when we ver bodies remied by columnation to howdery form, we aword always to impute it to ald of the vulstance w. the chemists call Phlogiston I vay they, by cestoring this the calces of onetals auguer thin metallie form. for then we must vay calcination is owing ? thelofood phlogiston . I reduction is look about begreston the lost phologiston wir coincides very badly with the dresation of the above experiment. Vegetable bodies burnt to dehes is called Incinivation.

In maching of Chalation it sometimes happens that by evaporating vome of the mon volatile parts that and umentations the remainder is friable befalls sown in powder; this is called Calcination & siffer from Mobiletion in this, that in the lather case the body operated upon the whains its former figure (tepture) after having been exposed to the whongest action of the fore. It is curious to observe that in roasting of forms antimony to vive of its Sulpher it continues to exhale by heat wo long as it does not five in longer. If then by anident in roating this one a furtion should happen we much let it cool so as to assume asolis form, befor we can proceed in diving off the remaining volatile part by exhalation. Mam a substance is incorporated with another by means of fise, but without fixing either them the method used for this purpose is in gebreral called Comentation. Iron thus implignated with an additional quantity of phlogiston Jis called tel as by encomparing it with charcoal dust & this esposing it are emompaled for a certain time to adequee * marquer vol i p 64 fe by of it will at later who have be for for po 1/4 ce 41 usi * Macquer rol 1 1.343 200 u n 0

of find bouly sufficient to make it sed hot; or by fusing it with matters that contains phlogiston. Tilver may be dipolocod & separated from Gold by comentation with a misture of fine brick dust four parts, withiol calcind to reduch one part toes vall on Nitro one part moistnes with a little water into a cement, of web atternate layers disposed in acruible with plates of the mutel to be operated upon bleeted with a past of windsor loam & water & thus placed in the fumace, will eath the Silver from the Gold who must be upeatedly boild in water till insigned. That operation whereby bodies an revolved into this principles by the immediate applications of fine is call'd Inflammation, thus the aid may be extracted from Julpher as in obtaining the al: Julph: per campanum; as both Geber and Glauber prequently operated in this manner the operation has cometimes been call'à Sulilimatio Geberiana & at other times Sublimatio Glanberi.

the second of the second of the The second secon who will need to the transition where the reduce the The state of the s 1 1 He had been a seemed to be her had been a AND THE REAL PROPERTY AND A SECOND TO ARRIVE A VIEW AND AND AND AND ADDRESS. A STATE OF THE REAL PROPERTY AND ADDRESS OF

Of Distillation Having whohe of the operations for obtaining the fixed parts of lovier, we obse come to those which an revigind to obtain the volable parts; but we must observe that afthe week asission is weful, yet in most cases the operation is the same, when des as as many times not to be veparated, as we obtain both; but we renominate it here anoding as the principal serion is to obtain the volatile parts. This is two fold, as the part separated wies in affect form this it is called Distillations, or when in the form of powder or flowers then call'd Sublimation. But the rules bremarks that apply to the first chiefly apply to the last also. and as we more prequently use the former we have begin thereith. Distillation is one of the principal operations of chymity: it is vimple when a vingle bory is vulgeit to Dist. When it is cased Distillatio per of, or when any thing effe is joind thewith other call Dithelatis cum additof. In the first the antient chymnils operating on a single loop by rate? offered oif! parts vuccesively as It oil water 4; They imagined it to be an analyvis of the vatitance beed it chem landy in It as it prosuus changes on the structure is not a proper analysis.

" summer Coming the standard a simonly of the fact from new me oper ourse in traver which are received to them had white find; the way or one who the first of the wind in it is not in the report , get in most use the fire and in the comment of me so man here out to be expanded in we street the last and a in a grant of a series of the series of a series of the series horale from his is his for , we has per exposed with mis his freing if is were himbered on him in the former figure we in the self of the makery. But he is is offer to the fit shifts of the other land with by little it into that as first obsered by State of vid antea. in the way to the the the way of the way and heart of a gent where the come there is a in the first the section of second second in some with the set they come and the second as a grant of and the second of the second of the second with the second of the second

as to Distillation in general we have little now to vary harring sufficiently coplains the principles of this when on locatation in your , & haporation as puries of whatation . But what he have to add is, that distillation depends almost entirely on the power of fini alone, his how there is chawens in our distilling refrelo to allow air at first but this is over ranglis reseaper that at the tatter end the distill! is carry on by four alone. This where the effect of an in dittl' as it requires a much greater four of fine to dittle in clow repels their in open ones, serpuially if echantles, as Mond. Capen has frowd, & as owers tow? The end of every distill? The refiel being then nearly exhausted. Berides the rible tums out differently, a different rest? A sproduction bing brought about from the effect of air informating the exhalation nebelection of the bodies wombing a bourgood . hie come now to distillatio eum addito. The offerent cases of righte? with addition are I (hatbook) The I first sepand on elect altraits to veparate locies. Tit To vet love avolat: part: for by welling loneavel hast from it coherion it vies is sistells, So into we i ancest Vall complet and & alhali; if it he revoled so asto set loose the and a si vol: Thises in fume , this is some by Raid w. having artisqually to the alkaline being of the wike writes therwith voctoches the nit! and which is afinted

the party of the second of the first of the the state of the state of the state of vol and the second of the second o to to the set in that will be her of good supplied in the eom the same our raise a section of a supplied to vola of where Comment of the first have being to move him ! may wed my goes in think of an is helled nickness the Mary The mark ull a result for the first in consider to the or ani with the wind of the House has been contracted to the Miller of the second lo jo poli in a completion with hara Land I for the land of the land of the land of Be THE REPORT OF THE REAL PROPERTY OF THE PARTY OF and the state of the state of the said of Lac Latter P. Signation -The said to second or the said 01. th

The 2. case is whereby means of slut: all? we fix one of his volat : parts . It may happen that two volat : parts hing with buoms composatively fixed such seconds Sal ammonias composed of mur: aid wool: all: both porto when reparche on week when united more fixed, but by anchest alhabion you may fin on partimen & detach the other - the vulstances and an different according as you want the aid or all: repart The vol: all may be reparated by means of firstalk web will setoch ih - the and by means of atthe withed : or nitrous aid . The 3? case is where two figh bodies united thouse ameefity to join athird with on of these to form anew mint wit will be relatile in toto . So coude antimy: is comport of youtallied had whether a saw both fist when worthed, but the municitis and being united with the metallie part volatilizes is & brings Hover by the apillane of heat in form of this oil careed There there cases may happen to be combined, for whilst we all muniation aired to volatilize the metallin park we also and morning is or de to join whis the Sulph. till the other is got over w" makes the operation more complete. The other seases so not depind on elect a thation. The At case is where alody joind to the whole votabilizes the whole, So metals may be valatilized by various addations as

and in all it charten from the form of the al were the it was approved for well got him Copy It inserted for the soil of some of contract to be much one fired, and from the land of the The for in freelings a relact willy a - the or Vince two In an siftiand any his commenced the second report in the of some of mary is por the order die what it in the wid by many of what will be without hea and from Some poly of and and dear the the the the of any line in form and in the week po The state of all and a second of the second ope line before one in ful other walks , at the one in the said of my part and said the said of the el ing of a radio in I had all for the had all the " manchine " - 44 the second of th Vue She a the supplement is a selection of the contract of the selection of the war in the wind with the way of 29 and the state of the state of the state of 10. the state of the s ais of the same of the not

as the men : aid or Sal ammon: by mean of with we can render appear from volations on to get them over in Ditillation The other three perposes may be brought under one head, the 7th orland is incorrect in hoint of language, the other to by dividing an aggregate so purchtil fusion on Intermercence fabrarerolution exparation . To clay, entirely punfrom vitrioler and, by means of siriding nite, favors the resolution of it into and rath. when hat is apply to volatilize the and; but m? Tott recommends thus times the quantity of clay to one of nitre that no two partules may be conjoined an ari is exparated which resovers it dartie take by the operation - I have mentioned two eiffs tates of an as first & dastie, but probably air i, in more states, as veem to be proved the an establed from bodies by cohauting annever -Sometimes the an hears from the most vised liquor w? week vislence arts endanger bushing the vefrel; at other time hen theliquen is less visit it escapes gradually other soes no harm This will give us an Isea of proats & intumeveence, against which we are to guard, or they many carry over the liquing to the sumage of the optestion; him Land is asses to amber in airleation esseveral other bodies. The some chemith way wand is not necessary obleset may be obvioted by regulating the head & close

10 Alle San Control of the Control of t he many of the last of the party 4 Le De Comband Jones A or it is required a stay in corner of a the wind and the surprise being soil the The state of the s m the proper sunt of will 1 The state of the s And the second s V and the state of t The state of the s Non Bary Min 2000年 新华山东 1887年 1888 The BOTH BOOK OF BUILDING 80 The state of the s

attention to it, but as this requires a painful attention 10 vand reliver you from the mufity much like the figer himiens; cometimes the freath is so visit & plentiffee to carry who agreed quantity of vano, but this by ition: fell sown whilehe the babbles undering the consecutof the separation much easier, but you must take care that your Sand be used only in week cases, or wich and in not to be asked uponty the hong Thotasty we make assition in order to regulate the heat, then when we want epential oils se heat their testime & by moverate hart the volatie of it angely repreates; contirm not aging more than billy heal of water, but if we vited without addition we should find it sifficed that present the head and hising higher the hat assition of heat gives them an empyreume, him The nuclish of water to her plant aftered in the their & with most take head above abiling point wathet My an in no danger of engymena, I are the resources The outematty in thre cases and add water sufficiel to present enjoyeema is actainly when to thereweater of had all there things king mentioned in every distillation it is necessary for a person to consider

when the total the squit a facility with the frequent in the organistical for front is so will be from the It come from how he have by how in some white to labelle a when the winter copination and some, but you must the con dyour hand to him welf in with case & secretion not be in what is a september of the land The faith, in our to exception in our of and that the con we want further in the last The hours to be more to have the coloring in many and in most assert me and the instrume to be interested in sta felifustion the facility and a down it is proved but from the dealer tring in the Action of the print of the noungly were mother of when to hope from to special who there And in the head alow when from the the many and of manufacts about in my The second secon ALL STATES OF THE STATES

comider the use of every articles what perpose they verse if you would be intelligent or understand the fulgict. Reetification. Dephlegmation Concentration & Chobation when the person of a 2? diffillation is only in order to reparate some facts that ashered in the first rishteaking the 3 first terms and applied the first case may be awing to both path being nearly equally estable so that both comes over together, but by the 2? Tistillation, mow care being wired, your expends here; this thusfour properly eno' caea Outification takes plan in procuring secohol from fumentes liques, i cont le get fine in the first, on ant of the atherior of some lovier of new The vamo volatility; but reparate in the raind; This however is rometimes not sufficient to make the sportion perfect but requires 3, 4 or & repeated operations. Phligin is a term apply & to water, is whom wo there is repended whether by distration or otherwise then it called Dephlegmation so we way were septlegmated alsohol - Dephlymater acids be: when it happens that the water is the ment volotile hack as in and a with hing soperated

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bom the other, brings the harts of the bay never together hence the terms of Concentration wi is different from undernation or that is bringing parts miner together In means of cold be: without any reparation of harts, this explays parts brought niends together by means of withonsing other hart when in case 3. & A! we exponent only on hand of the mint from the other by volatilizing it, we add a volat body in order to colatilize the hole but the vol: hody comes over without volatilizing the whole level whom it again to under the islatilization of thewhole mon pufut this is called Cohobation. To sal ammoriae apply to Iron or Copper takes up a cutain proportion only, but by utiming this it comes over an Makremania Despecting it operandhim you get aquater purtion of the From or Copper or the whole of it is rendered volatile Vometimes weapply water to plants to be injug: noted with their taste assistances the impropression the first time is often in miderable burnethe expetable offers but little, then we return the mother sittled or a first houl of the and to get a stronger impregnation

w the The state of the s en v GA ma A TA PROPERTY OF THE REAL PROPERTY. los *** The state of the s The state of the state of a open the state of the second the state of the s and the same of the same of the the state of the s the state of the state of of

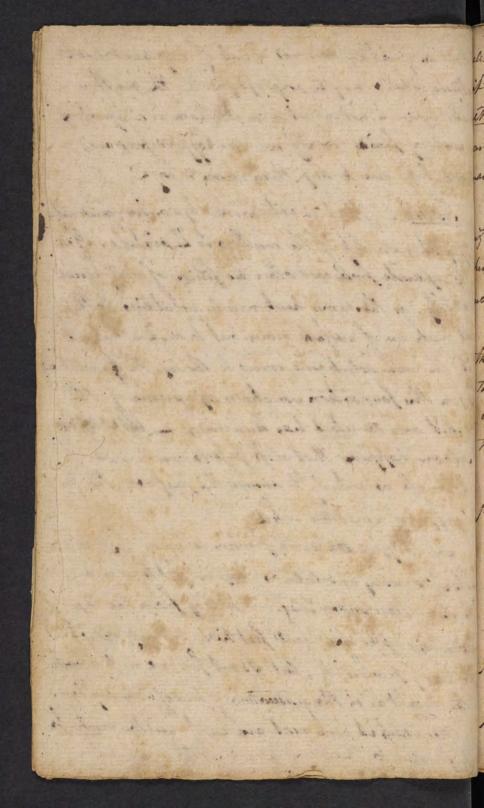
the mother wither was returned again on the former Distillation with regard to the form of the refsels employed is of three hings viz per aformer, her latus & por decensum In the first case we make us of an alembie or Guentit. The alimbic or common there is generally made with lopper lines with din, it commits of the prices the lover called the lody of the Shill other upper the head; when made of Glafe the bong is called a businoit in the D. operation we employ as more convenient a Retort & received & from this course of the vapor the quation is called Distillatio per obliqueson al for lates. There are the only ones now in use. The 3? is as ancient areither of the former in which the rapore and driven sownwards from the roather from which they come. The method was to lake a wearbit with the mouth mapwards on with was peaus the matter to be operated upon, on this an Boon plate over in fine the heat of which some out arapor from the bony with formed into

. The hand we have the second of the in the little our when some in Property Comment of the party of the said to differential in dispersion is 1 and the second Bre the property was and the second of the too bet the reacher of more will be a series A the second wind with the statement will be seen to the and to the grape of a hear of lon. and find the hard a secretary was ins 200 las 10 Company of the same it the state of the second second second second is the state of the s the first of the same of the s a caj ea an to 11年1月1日

sops ist the bremlet under it, this operation only described in ord authors now out of use. as to the refsels employed in sittlestion regard is to be paid both to the matter oform of them matter. I have wheren why glass is purposhe to very other matter where the heat of the fire is not too great, for how we must employ earthan refsels A glass where put muly into the same votuations Think or on tat glass refeels areasier fund than boun little glass, w'e vertains a great heat of fine the' we use the advantage of transparency for a more injustants me fits uniting tronger the action of the fire. It went metiones happens for want adeque of pict it ach eun on this lover glass, but as fit soes not fure readily so es to um, by means of a court of earth fear over it of the come material as our mething repels it form is personded, the heat is equally applied, this is called a coated retort But when the heat is so great that this is not capable of sustaining it, therefore use refeels of aparticular earth of where whale sheak hereafter. when we want whele is large that no glass whel can be more sufficiently large for it are acolliged to un a mitalie one vach as the copper of bewersh.

22 A me the nos and 1 ilee we wa ex in

when an operation over not admit of very great head metacie vepsels may be complosed frovided to matter proted upon is not vulget to corrobe them as in operating is watery fewer boff we use coppercipels we hoved take core to hup there cleans & Day an Torm. Hat is betermined by various connection thifly the volability of the matters to be sisted. How on to reparate from each other two fluids of many equal weatility, as therame heat maily vocatilizes both, is must make use of arefall drawn out to ouch a height that the mon volute excess arcend to the top, the for volotical not; on this foundation vometimes specience of the Combit are the retort has been given - lest I believe it volver happens that glass pefects can be made of well length as entirely to annew this purpose, Menfore we geff. use ametallie repel In whiting convent prilsin acommon till the water so nearly as volatilear thespirit apt to come over with it. Bourhaan ingined that if from the top of an alcombie apipe of several feat high was employed it i? effectively presentily, but I sont find so much accordage in the hight as in the quadration of heat of " hereafter. not unlift it were guest, and we to use the matrass in preference to theretors because is thermoust he are



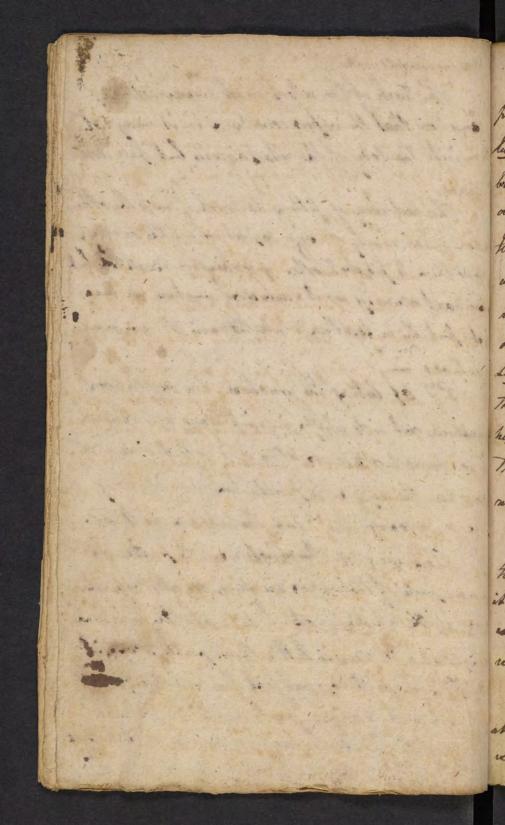
umbin other abolt so Ejunctures to be closed makes I inconvenient - home we now more conisersally use the this encioner, as the ripide may be little fitted to one another othe junitures comes closed. The Cuarbits selvina ade at Glass bouses ling much out of use There is only one case whom the cuculist is preferable. of where in the with lation we are to lagion with ownard had a continue to the greatest violence I aglass vefrel in outain in a nated fire. where this is newfray the chemists generally begin their operation in exchatorand heat, afternoonemore the matter to a conted retort, this cannot well be some without heading the retork so anativas prequable as the matter can be now easily got out of there. In the practice of eithelation then on veveral! parturlan nulpay to be considered. I The manner of putting the matter into the retork This must be in the bottom none in the neck or struck undown into the receiver to the detrement of thoperation when we put in flaires we we along much's crocked the hund reaching nearly to the bottom withness it is. caution so as not to let worof touch the meh; when we but in my poeder it must at least be wifed out clear whenever then aperation is require adortion during

the ther The State of 354 case 1 Francisco vanish and the second second second Her and the same of th ant tue and the state of groups in rus ALL VINE LAND fa the way the first was the town was in the whole we was a proper to the same continue in the second of the Later of m Due und Milas A Straway is 5 Lug No. of the last les A STATE OF THE STA AND THE PARTY m fac and the second C. S. A. S. C. ton

the operation we showed have atubulated retort with a topper ground to fit it, whichwile raffer you to put from his as your please vitor them up closely. Other comes requiring atrebutated retort on where from putting in the matters, fumes ougenerated in avery qualingues then it muchay, Sint to hat the extert in its place flute who were very well, other apply the matter by the tubulated retort to that the Jeone may pap into the On we to put in the matter are at one? or how far may we few therestors ? when those is intumercence we must have of an in the med to give room for the funes . a common withon is to fee the whoch % full, but that cont beoften unlife in along longed was english retort, in some cases it must not be free alove 13 full, & in cases when the is no intermercence we may ficial nearly to the nich; livides, when the expossions visited & vy elastic we much have as much woom as in intumination 2 by Tilling the receiver to the retort. The retort mul have a mod to long that the conserved vapor will few from the nose into the body of the mairer without tonohing the much with might theuly be easily broke, this

a thing with the contract of the said of the said of is file ordered and the last for any The find fund of it was property in in w The said will be delice that the section 1 the other form in process the same making I have the in our on the hand the window ! is, a wind of the wilder way to him to to . the way a pay a pay - but to in a full the nath of the me of the shortest 1 and amount of a series to med a give when for the former of the second with the section of the state of the section of the when the property and the deal of the grown and the first war in fact that he was the the state of the s and the start for the plant has reduced by any or a con water the second section of the second section wind the product of maintain the said for to the same a rack of a low that the man was a fact in the you have the whole of any had on and fine and the state of the me

is an inversal rule. The nech of the whort most havevuch an inclination that the report convening in it racy not Atemints the long of the retord again but fall into the miver: The last every of fitting the moh of one to the other is, when made nearly of awage to put in a little emery & to gains them to fit wal other by working round alittle ful just put them together blute them in the common methods of leting the junction. Ela ox blatter monthed, cut into theps an init broad slong enough to go round 2 or 3 homes tothen higed with Hoine will so hen the vapors the punctiating an not very easte or corrosive in it case the blasses wont so. There we close the junctions with parte as common parte if the vapor on mie, or with the parte we use alithe whiting or chalk to make the junction fini; but abluster is letter then parte whereit is sufficient, as it soes not fout the nuchof the when the common parties not firm enough on made of the flower of lineed may answer fut that



not refluent when the vapors an correive, then a parte is und whose bosis is aclay home the name of leting, but simple clay is not sufficient. for with the but canto a pipe clay it is newpay to mis a portion of sond a of bunt clay councy powdered to the vige of sains to as to take of the tenacity orgine it the power of concerting wither without crocking or flows. The matter must be put round the juncture of some thinking there a moist bladde werit the up, but if we win at atight close Luter, we must apply the fire by slow degrees ordry the luting in some measure first, were expense places happen to fell up with more tuken before con put on the bladger. But the junction must reloom on more to abrotutely close when properly lated the retord is to becommented to vand in an Iron for having end in the bottom to give it asteady motion & peventing its tereting the bottom, Then a auto her it up with and almost to the top for waron hireafter to be mentioned. A. I applying heat. The fire should be moderate at first, equally applied & gradually incumed, otherwise the where infectibly hears, buides there is another huspon

of the is in the time , so is a wearing them you wanted and some and and and and and and the state of the state of the same of the " with the second of the formation which It I who of two is not be well a fact was a wind the state of the sta and that in militar in properties " on on a so in fair for for in on to of it is in our war with a march for fure The second of the second second second The state of the state of the state of a want from the the whole is to be come this a comment of the daing on the south of a when when a huntipid her his for beit me " her and the second and the second and the second and the second I man here to be an authorise of the second or were The second state of the se

of the gradual application of thefire in order to report hosis aucroing to their orfound segrees of volatility. Notice for spreach near to each they in volatily withat quat anwagy must be used to apply euch head as will whalethe most volat part and the other, Patience the face is nuchary that always de feats the operation! I are unge the heat too fast there is sanger of bearing the befree about now ears by foring up moto vopos than therefole can contain ocondense at ones; hence the neelpoty of contion in the conduct of the fine for that purpose. Otherwise therepors will vine faster than can be condensed; This rule is universal. . It is here there are some very few internes is on exphosis to the general well, where we must get the rapor rais awoon as posible; this very race Inquies a mouleage of the values 5 by Preventing the repel's being borst by the quantity or clarking of the vapors. For this prepare the fire must be raised whom the repel be large end to contain the matter when swelled, but in many cases where the vapors one very of the fire or logenehof the wheel slow, but it is rubay to

and the second the second of the second the to have been a distributed from spring see he as white is whater without which may fely to the above morning of in well will you to the harden to them to 7 when when you had a grand on we were the and say of Thomas Harris as h if the live to a new your good dight The the matter was when the work of the in the spot of milion is so were first i. had just the Minimin the spect with one paid in a Description is their such a transferred was now to of in five fore we were me the interior when a tre winner were a new in many of the come has not by which in the section with 01 U in temporal The lead to be for the deposit of withing the report in the proper to fire with all the state of the language to the water the state of or as a refused and a tool particles and the first of the second ve

allow some ipu to therepore so atto under the operation refer ithous shorting the process by warte, for in purpose some use alrose laters to refler the vapor to except this it, but This is authors unot easily determined, hinder there is more ranger of the excepting fines catching fire therendanging the operator . When therefore propose a went in the wieser by a venthebe of great hight in which the perfound of the air wild prevent for vapor from excaping to much, eight to give ifour to very clothe vapor, but the objections against a are that a long tube is apt to make from the least inclination & section employed on that aut, & as it can't easily be fither to the tubulated riverer, atthe Di Lewis is very fond of it. another continuana is to drill somale hole in the upper part of the reviewer & put a peg loosely in it or askight toppered luten, ather of while bethrown out before the repel would hart; besides, when we ver the elastic rapors aming in great quantities a so filling the receiver as to require vent, which is easily known by one used to operate, the pegmay be preced out so as to let some escape, This is the contrivanu most weeful & much employed. By this mor Googley was the only person capable of phosphones croes this venet to the King of france for agreat Jum - in every

di a separate of the second contract of the second 001 . 4 Little and the state of the state of cal X Large globular recievers are vometimes rec und forthis purpope called Ballons the which we for some of the training the in the second of the second of the second he a series of the series of the series of the formation of the second section of the second w Commence of the second second the second of the second second W

other manner the repels were harsh Then is an advantage in the ving of the reviewer to conserve the vapor offer having the latest long nuches to remove the reverse forther from the heat. There are mean of amering lots there methods by what are was adoptero, intervening between the retord and unever, hing hollow of here, as it were, like beads theases on one another . Other man may be und by wet elaths constantly renewed & apply o round the receiver - Sometimes the receiver is supported & hept theary in water so as to consense the vapors. bily breventing the matter from concreting in the nuck of the retors so as to choch to up. This happens often in willimation where the vapors consense before they are pushed into the receiver which if worged on will herst the wefel . when the matter is my were have no other resource than stopping the operation or might have been prevented by huping the nest want from the beginning with warm flowed wrappers orsand heaper up round it. But when the vapor concretes into ar untheores fewid as latter of antimony, we must apply hot well it sown to

for all reals to be a second ma the state of the second 4 in heart the second that they were the in training for the fire to head of your 4 20 and taking in the training that you were to all and a second of the second of the second of the second and any notice of how is a strong fine thing pro for your many in the common way and as in and with motor of wareness (1795) wind at the property of the second of the second voi a life of the second of the second of the nen by there is sally marked to m a wind in red in the hands of the restain the second nu ment were the refer in any me will be to the che de la company de la compan and the wind The last first free vin when the second was stated in a formal of che many have been primated by higher many to make The the family was to me the wind with in 8 the a leafer of which is Takahar berenga water into an working ofs you to the grown now have give I would so to I man all the at the largest and a second Res

make it flow into the univer. So in witheration of expected rich, it is often much english the warm water besuffered to remain round the worm I notrenewed as nuchay in many cases on as to help see warm & fluid Throwing air into the Butiling uper duing the proces experitts the operation, especially where air acts as a mustrum, as in distilling the oil of without by atting in the air during the operation unders the air volatel whings it over easily; this was a chance mice very of De Hable, but Mer Hale's epay of throwing in an is of most importance & is to becommented on this meaning by eleparating the matters that are that over . In general be find means to make the expension when seef is come over, last it is often newfrang to usparet them vuinfriely as they come been the common method is by changing the renewer, but then we must employ adopters Thefaire if the wiever is removed the cold airwishes in a heads the refuels; but there is a difficulty attends the un of arophers from the firmels of the luter what afterward silficiety ries. a letter practice is to have a sport receiver Met is, a take at the bottom of the runiver to be runie d

A Victorial Control of the State of the into the state of the s thus while it we have the first the Any we can be placed The same of the sa white & property which we will A continue of the said the said of the Ru the second second the opening in the second second And we want to the state of the second of the second of the colling of the form of the said of another produce so a fire or the me that The spector the sail to have an interest was on for some of the say water will discourse white if it was for a front in 1 which so they were closed to recover on the side A continue of the month of the country is where if the miner is compared executed in contrates in the interior and then in it is the attent in the party of the second u, 40 too & sufficiently the F. offer truck & a compression of the to vh man have er endiana con

into a bottle volightly lated so that the little and air thus somether has lef songer of heating the vefsel. It is newpary to let the vehels cool before opining them, Meserice they may beach. Juster the vapor is not consensed fuguntly for como time, & if opened too soon lifon consensation This would excape ble lost another consideration is, that some of the vapors an parmently elastic & of adeleterious quality, which the spenator stoad avoid taking in by inspiration, as they might speedily bufforate him. To this add had the taking must be carefully removed before you low If the liquor, beach it should thereby burifoled to the retiment of the fewir all swater may be superated from each other by mean of areporating muy or furnel which is lest. search by alittle practice / Bil Salt by one reparated by assert withlation as in othering ail & Seet of Hartston &; 8 the last use for the consuct of intellection is, that the spector should attend to the natione of the rapors excaping from the nefrels during the course of the operation; if inflammable as fire or flame should be brought man to it, lest the fearm be come

The second of the second con lefo. when he is not and some of which the war . the section of the second section of the channed the man distance for the the same and and frequency for any same to I specify the 1 med it is a commence of the last The top war a fact or many the server of the in what and frequence in william with the state of many and the as of the man is a company to see the see of the see of the see aci have the to down her way our for the fall to 1/4 making the set of market the tenter of the street e one of the second second second second m in the way on in the mine all had the thing of the wife is because of the or was not to be ·ā Kerth of water should without it the north will be 400 a new represent entering made where Ro Mark and and a state of the last W. a company to the same of the same of

communicated to the substance within, be suarion the left of it & applonion of the vehels. By attending to these general rules in reading of authors you will understand the nature & mangement of each proces notes fully explained elsewhere. Of Sublimation Sullimation is conducted on the same principles as distillation & most of the varne rules take peace here. are the difference wires from the disposition of the body to wrate into spowsee of lowers to which many have with adisposition that we may often paractice on them in Amperovepel The siverities of the apparatus for Sullimation coat be tracked of here, as they are from the patitude nature of the body to with they are to be referred. Sudphen is along which exposed to relien. ation gives a dry posserialer Houses; when we practice on Quilhilors with the munister and what comes over is in avoid form, which more whistly called a Sublimato.

and the second of the second of the second The second second the state of the state of the state of the state of · A comment fire process in the second of the second secon and the second s electionally income in the same fields price and the state of the second state of the second to the siferior will find the street of the said experience better the service of the state o and an expension that was many from proceeding in the Carrier and at the test of the first way and for the facilities with the same of the same Softher is sing winderfeel in within to give a my lander wine interior a hour of whice or in interest the second and had come now is no a some from which more in the second of the second of the

If in the writings of observity you find any operas from which I have not monthoned, you will readily unsentand them whealth to refer them to the proper one of the three head I have macked out. This finishes our subject of the opendrois of chemity



Of the chemical history

of forces.

A chemical history of bodies otherwise termid an account of the chemical qualities of bodies makes a very priheipal part in the study of chemistry; it is conversant in explaining the causes on which the chemical properties of booies sepend & the mans oner of inducing or rethroning them. Chemical qualities for the particular proporties of lovier, or week as cannot be referred to the properties of bodies in general It is but of late that chemistry has been considered streated of in a vientific or methoric marmer for a long time the chemister had entertained a too contracted notion of their own art; they first confind it to the doctrine of metals, & afterwards limited it to pharmacy; but at prevent chemistry is much improved by extending our views to ageneral and

of the converted his try cornered the steering markets a redice where any poton of met in the brief of Sugarious is resident in extension the man some miles the exercise frequencies desires the self wines of incurred to be begins from to conjust marthis last the formitalist protes in some something is the first licies in warms when the west had the start to mener was a fire or one particle & property be no him the above of some abouting the him the control of the second of the control solis a white explanation in their from a soften of property of the formation of to and to prince of the said

comprehensive knowledge of the particular properties of It has been apaulty austone of the chemists to class the riflerent subjects of chemistry under the three hads of the animal, vegetable & fopil hingdoms; but how improper & confused a milhod this is appeared very evident even in one particular, that is, in treating of the voctrine of walks some of which are obtained from the Joseph hingrown, others from the vegetable & some from the aromal be: how much better is the manner of distributing the objects of chimistry in the manner we have already arentioned into valine, inflammable, metallie, earthy & watery, to which may be added acreal a

Houreroy makes 3 Genera of vimple talts Ospeciel Terra ponderna Magneria · Carthy 1 Zighlime (Vegetable of sed Alhali Alhaline mineral wind Alhali rolatele Alhali de Acid of Chack, acriab Acid maxim stick sparry steid Sitratus and Agua Pregia Whiolic steid Acido of Boras

Of Saline substances Salts we have vaid are rivided into simple and compound. The wimple walks are and and alkali which terms are generical containing each of them veveral different opines: thus of airos there are generally nechones A opicies and of alkalies three - there include all the vimple valte we have yet any knowledge of. The four openies of and are the vitrolic introvers, muriatio and vegetable. The alfalies are two of them fixed viz regetable ofoseil, manus after the enlich from which they aw taken, and the third volatile. Nome chemisto have advanced it as their opinion that there is but one and in nature, whichly wheating, of which the four above enumerated are only varieties. Other aforers that there are veneral hinds of and her der them of oisserent nature aproperties, as and of amber, of phosphorus, of break, of ante by: hut

1 tes no p Britis Strong , 4. a character to the first 6 Sec. 30. 18 1. 19, 135 1 Share both south

leaving this embiech as we find it, tis emflicient for our purpose to consider those four ands we have mento tioned as differing in their powers and properties -To avoid ambiguity we whall call them by their different names, & cortises them as so many different extraordinary productions of nature examining their properties very attentively as being most universally known. Actos and alkalies mutually attrack & unite with each other forming combinations which give us so many different Salter as they form new continations. Only one and & one alkali can unite together at one, so as to form as alt; therefore multiplying the A airs with the 3 alkalies we have the number of compound wathe which can propribly be formed from them in number 12 - they are termed new tral.

see strong and I have made been in to consider the wife is the wife in a graph of the section of the second the to the way of the bound of the said ca this is you will be for the this wind employed remains · Nomeroy makes to Genera of tompound Latts composed of an Arid hinted with fixed Alhalis, rotatile alhali, Simo, Magneria, Clay & Terra porderora. He soes not rechow the amon of stieds with the metals amongsh valind entitances.

It is the property of walter thus combined to have their natures wholly changed from that of the air or alkalis which composed them - they have a set of qualities different from either nor so they pattake of a middle estate between both; on this account they are called neutral. There neutral Salts comproved of an aid & an alhali an called perfect valle as well as the comple valter; but besides them there are no other perfect compound valte. The compound valter are of three hinds mentral metallie, and earthy. a neutral valt is composed of an and and an alhali & as we vais before) is aperfect compound Vall. a metallic valt is composed of an and and a metal. an earthy wall is made up of an aid combined with an earth. There two last an imperfect comp? Patto. - All compound valls have an acid for one of their ingresients.

and and and many the first of a. as week with a series to be at announce and on he will not be really as so the will be to the state of the season of the said in which wife . There wheel a wife it I be here he is to be a party freedom to broad lea the same has been to be to Carl Kindley 1943 . M the state of the said of with the same of the same of the -0 the section of the se with the the said with the when I the influence in her

as an aid will combine with only one alkali at a time; no more will it combine with more than one metal or one earth at once. alhalies, metals, & earths have a greater tensensy to unite with one aid than another; & the aids have autronger attraction with, or affinity to one alkali, · on retail, or one particular earth than another; & as it east combine with more than one at a time will leave that with which it has the least attraction to unite with that to which it has a greater affinity provided they be put in proper circumstances, the principal of which is volution or fusion and being placed in contact. The aid will unite with these different out. vlances so as to make compound Latter only in certain proportions, rifferent in rifferent airs to the various particular with which they are united whether alhali metal or earth. Hence it is that the number of compound latts an limited to four times the number of ingrediente which will write with the saids, & the number of

the sale of the bear of all our all n the state of the same with the same the has con m the section of an appropriate from sold were were him made, ne the section with most framework of the will see the ori the on the state of the first a server as in a liverage in his warmen in al. the a material and make the property of and the same and the same of the same of 2 50 ch \$157 a supplication or solver finish to an Yours of the hours 1 1 1 1 in the said will be the said of an interfer.

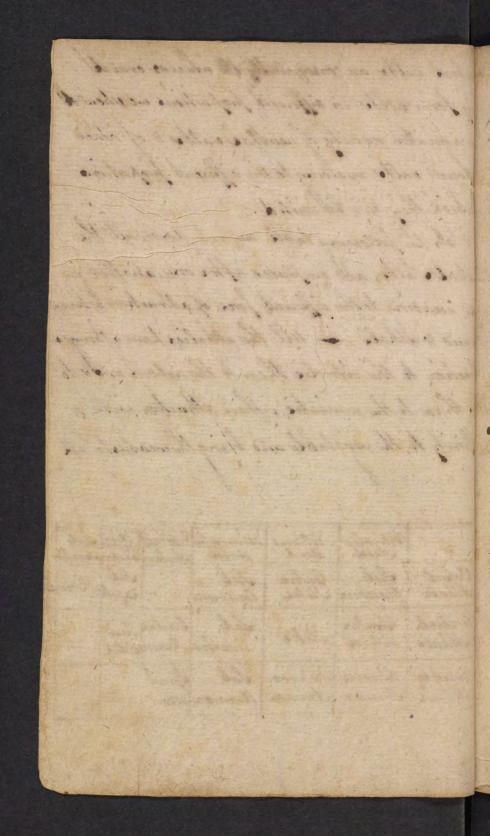
they form valte in different proportions we whould have a greater variety of neutral valte & of other compound valte auroring to the different proportions in which they can be united.

en the following table are vet down all the neutral valte, and are placed after one another in order according to the different force of attraction between the aid to alkali - all the alkalies have a thought

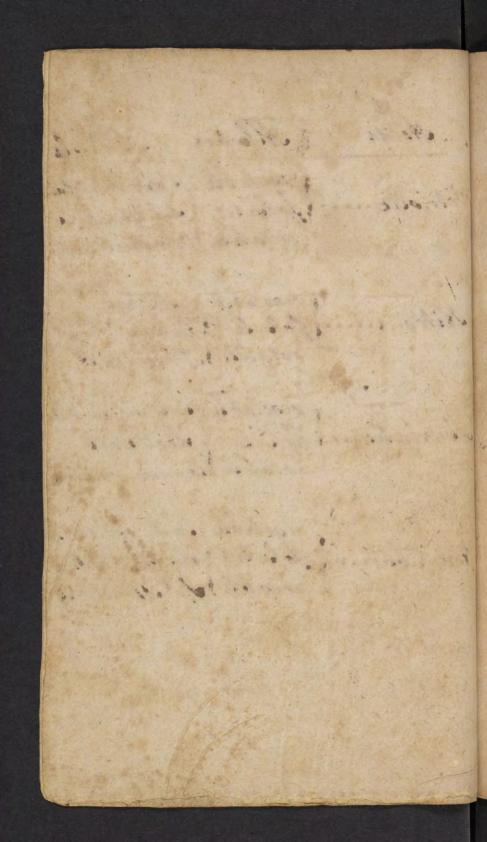
this than to the murished; their attraction with on affinity to, the vegetable and being the weathert of all

Mrachon to the vitriolis than to the nitrous and to

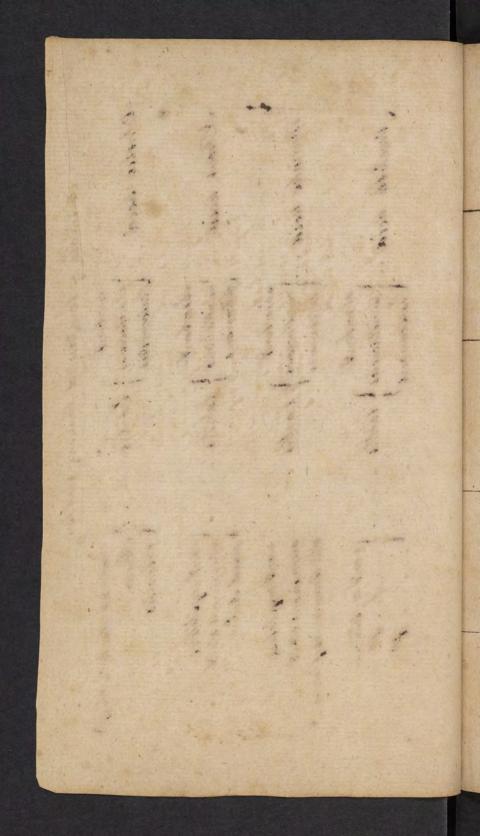
			muriation acido	Vegetable	La arid	Sedah
Tofoil Alhali	Lab Glauberi	Subic Sitre	Sal		Sal	Bon
Vegetable Alhali	Tartar	Sitre	Salo Digestive	Tartar Regen	Tart:	
Volatile alkali	Vibriolic Ammon.	Silvous Ammon:	Sal ammon:	Thirib mind:	•	



Heids Alhalies Newbrals (vegetable Tart: vitriolas Sofuile) Sal Glauberi volatile Vittiolie amm. Vitriolie. (vegetable Nitre) Cofsile (Cubic Nitre) volatile) Nitros ammoniae Nitraus ... Sofrile Sal Digestivers Volatile Sommon Common: Muriatie.. Vegetable ... { bofoile fal elignette volatile fo! Mindereri



Vitrolie acid ... argillaccous barths Nihous Roid Vegetable acid .. Muriate Reid A Table of Compound Carthy balto. angillacions lanths Pealoarious Jamillaceous & barths gelcanious abordens angillaceous tooths absorband absorbent Vealleanious kalcarious absorbent aluminous data magnesia Glaubers ball 1 piped Nime -Alum) delemites Val ammonias: fixum (wont on vialese aluminous Valt word congrtalize · · · / · · do



Metallic Jubstances 1 ohlver roppor Gold resso boball Moreuny trohel Burnuth Antimony Arvenic Materia Zino Withrolic breid wont sipoles Supeth minoral requires head only comoses only comodes only correspes work defolice nont sifelie wond disposine green liked blue Pitrol while aitricol nihous acid rasish liquer work organistatione only complets backamin brighters greenish lequer mont dipodue Lunar brystels only comboes word constalere work constalere muniatio and negetable haid Comes: falkimate only compoes word vipolar Supplies w. Difficulty only comobes only comodes dipolves . work exposer. work exposer dipolies . econtes comboes word dispoler backarum fahume methy class Kerzignease) ocene composes work refusive timetic part

The state of water 1048 No. of the second はいいろうろ Sand Sand 湯 がまる 144 8 44 The state of the s A STATE OF THE PARTY OF THE PAR Service Service AND A MANA * 1 State of the state こうか こていたか co.

Having spoken of valine outstances in general nee next proceed to wheat of each one in particular, beginning with the simple falts. of the Vitalic Acid 1st Ito Statural History. The vitriolie acid is a native intotance oupposed no where to exist in a veparate state because of its great affinity with various bodies. It is found combined with different outstances. 1. Salto. As to Salto it is only found combined naturally with the fossile fixed alkali forming Glauber's Salt. 2. Metates. It is naturally found com bined with from Copper & Lind forming green blue & white vitriol.

3? Carths. The found united with absorbent larths as magnesia, forming magnesia Glauber's Sack, with the absorbent part of clay forming Alum, & with calcarious eath forming graphsum or delenites. 4th Inflammables. It is found united with the Phlogiston forming Sulphun, & in the pyrites & vars of metals. 5th Water. It found in water only in consequence of newbrat metallie or earthy Halls being disolved therein, & in the familmanner

Mr. Lavoifir has demontrated 1 That Suefther cannot burn without the help of Air 2 That during combustion it absorbs the princest 2 part of that Aluido. 4 3 That the resideum of An cannot were for a a new combustions That the vitriolie Acid which result exceeds the weight of the quantity of eliephon which produced it by the exact foright of the Air look during combustion 5 That in comequence the elither is combined with the portion of pend Air which is absorbed in order to formthe intriolice and This and is therefore a compound of pure Air Voulphur to That sulphing place of keing a compound body is only one of the principles of the vitriolie estaid D require no more than on union with pure athorpheric an to form this and which is some by combustion

in the Air. It remains adoubt whether the intriolic acid is ever in a natural state in animal or regetable vutstances. It is in all electric maker for the Inap or whoch is a decomposition of it as is wident from its changing the colour of Roves in the farm marrier as that steid! 2. Ho chemical preparations or methods of oblaining it. The vitriolie acid is extraded from without, sulpher, other yrites, but most prequently from ritriol whence its name is derived ! The process for obtaining it may be veen in Marquer. This aid may be sendered votatite veveral ways, 1thy allowing air to pass into the retort during the process for obtaining it from any fixed body. 2. by being united with Time & distitled therefrom it will arise in a votatile estate. 3? by uniting tuits inflammable outstances as oil or Meshol & elevating it therefrom by distillation, or from Sulphen by burning it & placing ctothes over the fame previously web in a foliation of any fixed alkali with which the audsenites forming a vitriolated Tartar, & from which it may be extricated by the fixed vitriolie and. Al Mis in avolatile state in Hepar Sulphoris & may be obtained therefrom by adding a fixed vibrolic and threto.

0 1 1 dilio Lan the Short Street 1 and the later of the later be

3. He reparate properties. The vitriolic acid is the most ponderous of all feried except Quichsilver & forme metallie solutions. Jarentieit determines its wherefic granity to be to that of water as 10,775 to 10,000. Inlik fixed state is is considerably more fixed than any of the other acids emitting no fumes of bookell in The greatest head of the atmosphere or even in that of boiling water. Exposed to the air it imbibes humidity. It is the most powerful of all and though then an many verbetances which it does not ach upon obviolently, or dissolve so readily as some of the others do; it theches fermentation & putte faction. It unites with the other acids generating heat. It has a greater affinity than any of the other ands with alkalies uniting therewith with heat & effervescence forming a tertium quick; if the alkali be in acausti vlate no effewereene happens. 2. Metals. The vitrolie and will under noth all metats; with some it has a greater affinity & nith others a less than the other acids, particularly The meriation which will discernite it from delver & mercury. It dispolves from & Line, but requires to be first dilutes. For Copper Amust be concentrated & for other metals it must be

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in its most concentrated Status afvisted by heat. Golds is vearely acted upon by it 3. Inflormables. the vitriolis acid discovers in general astronger attraction to the inflammable principle than any other known species of maker & when com= bined therewith forms bulphur. other are circumstances however in which it forvales that principle to unit with vome metallie bodies, particularly Iron's Copper. If either of these metals be combined with suffered & the compound gently roasted or calounes, only the inflammable fact of the Sulphur will be dishipated, its aid being retained by the metato which is thus corroded into avaline concrete. The vanu change is produceable nithout the application of any externals heat from a bar mixture of from filings and Sulpher moistened with water. The vitrolie acid added to oils produces heat effervescence blackness. With ardent Spirito it produces heat veffervescence, exhales agrateful odown forms Other. 4th carthe The vitroliv and has the quatest affinity of any of the acids with abvorbent earths & writes therewith noth effer. vescence, forming nith magneria, magneria Glaubers Last commonly calls Epsom Salt.

5 160 (2) . The sale of the

with the absorbent part of clay forming Aleem! & nith calcanous earth into Selenitio consides. 5th Water. If equal parts by weight of Bil of vitriol & water are hastily mingled together the mixture becomes instantly as hot as to render the reful insupportable to the hands. 5 hants of the vitriolie and an sufficient of vaturated or more of fixed alhali & anounce of this aid when concentrates contains about solrams of and & 3 drams of water. 5th the various Names. In a con. rentrated State the ancients caseed it from its apparent lubricity the oil of tritriol & in a weather state the spirit of vitirol non generally Distinguished by the names of Spirites vitridi fortier & tennis. When obtained from Supher by burning under a bell shaped condensor Shiritus Jusphuris per Campanum; when obtained from Alum which of Alum &g. Some Chemisto suppose the vitrolis and is the basis of all the other acids both mineral & regetable, whener they call it the universal, primogeneals, vague airob.

Stadie Of the when the human to tell from a tol strenging wards In proof of this things warrend makes.

Of the Netrous Acids 1. The natural History. The nitrous acid is the most limited & leash frequent in the Carth of all the mineral Acids. It is never found pure, & is seldom met with in any combination but in the neutral Salt from which it receives its name. Some suppose it is the vibrolie and attered by hectrefaction & the commistered of forme inflammable matter. In proof of this opinion an Experiment is alleged in which the nitrous acid returns back into the vitriolie; if two Cuncer of good whirth of mitre be digested with half an Gunce of Bil of Thespentine abalsam of Suchher is produced possessing all the properties of Common balsam of Sulphur. for the production of Notre there is neaf-: vary 1. a putrid or puttercible matter either from the animal or regetable hingroom ? lestain earths as Boles, Clayer, the platter of old walls to & 3? Airs. The Barth veems nelessary as a matrix to generate the nitrous acid by mean of hutrefaction induced by the putrescible matter, & the Rir is necessary to corry on the pertugaes tion. The negetable fixed alkali in hitre is an artificial production.

Story forthe to show for richorn town from which may then he town have a whather proof a let you he Educaria roll to crember The state of the s

2. Method of obtaining it. The nitrous Acido is obtained in alsparate state from nitre, only in consequence of its being secomponed from the alkaline befir by mean of astronger Acid visi the vitriolie. This is done withen by adding the expreentrated vitrislie Reid to a volution of Nitre in water, or by adding any vulstance having the vitrolle acid in It & with which it has a less affinity than with the alkaline basis of the mitte, for the vitriolic and uniting therewith weto the nitrous acid free, which may then be clivated by distillation. Green Vistoliol is generally used for this purpose; for the process see Macquer volt f: 252 or Neumann. 3. Ho weparale properties. The concentrated nitrous Ried is weather & much more volatile than the vitriolic. It is in hart dissipated by the action of the Rir in prongent vapor which appear before their rishersion of a red colour. In Distillation it rises in fumes of the fame colour. If an unstapt bottle of it be fet by one containing the volatile alkali, the vapors of the two will unite together & form a white cloud in the Rin. It is of a light yellow color. The vhicipie gravity

Committee Continued and the When a water that may a way in the warrant warrant of what is a state the second Same you in march Lacks history

is to that of water as 15 to 10. One dence of concentrated nitrous Reid will vaturate veven drams of fixed alkalis contains two drams & ahalf of here and & five drams & ahalf of watch. 14 th Considered in its relation to other Fodies. 1. Saline. It writes with the other acids generating heat, & has the qualist affinity of any acid except the vitristic with alkalies with which it writer forming newtral Salto. 2. Inflammables. Combined with Gils it produces hear, a violent effereseence oblackness If equal harts of a well congentrated nitrous Buid & epential oil be viedenly mixed together a violent heat & effervescence will entire with copious pungent fumes other will be turned to a charr; if a little more aid be then added it bursts into flame. Expressed oils may whewife be made to flame by adding Mereto egical harts of the vitriolic & netrous acids combineds. If ardent opinito he poured hastily on the nitrous acid a violent heat & effencescence arises & the whole is dispipated in fumes into the lin; but if the leid, econtra. he poured by little at a time on the spirito they will write without any efferverseence but Eachale a pungent odor & Stroduce Other.

hit it have been heart gold grad field regarde carpy process of hand The state of the s reflerent rions of How to with butomorise was digues of the second of the little of Long to block in not love love so so comme collection of which was been performanced the tenter toke, the makers with the tenter The how down works a frequent

3. Metallies. The nitrous acid worth touch Gold but either sipolves or corrodes all other, metallic bodies. 4. 15 Carths. The nitrous Reid unites with Earths forming earthy walto that will notingstatlige. 5th Water. In unites with water generating heat, but with See it produces colds. Silver dipolved in the nitrous Reid stains hair, bones, & other volid harts of animals and Different hinds of Wood of all the Intermediate whades from a light from to asech slasting black; the liquor commonly vold for staining the hain brown or black is no other than volutions of Silver in Aqua Fortis vo far dilutes with water as not vensibly to corrode the hain. This volution inspitated to anyness is the Lunar Caustico. 3th The various Names. They are Spiritus Mitri, the nitrous acid, Glaubers Spirit of Nitre, aqua Tortis, Spiritus Mitril fumans.

and profit rating Touten, the wines week eye called from murile or sin strot his called the marries level historics of vaid it is alknowed from the nawher well it ingered to the force laid of a regularies hat in with the land on mon the first an experie chemistre is the in water out Steering of the State

The Muriatic Acido 1st Ho natural History. The municiatie acido is vo calledo from murila or Leavach from which it is obtaineds. It has generally been called the marine acido because, of before vaid, it is obtained from the marine or Lea Sach; but as this walk existo naturally in the Earth as well as in the Sea & it remaining a foulth whether the Salt in the Sea daes not one its origin to this fofiil dall, & the term Muria including both, it therefore is most properly called the muriatio acids. It is outposed by vome chemists to be the vitriolic acid combined with an inflammable and a mercurial or arsenical principle. This acide may likewife be abtained from common ammoniac, Urine & 6:

2. Method of obtaining it. This acid in attained from Sea Salk by being decom? hounded from the alkaline bafis thereof by meam of a vitronger axid as the vitriolic or nitroils, & then elevated by distillation. — Thor the methods of obtaining it both by means of the vitriolic & nitrous aids see Macquer vol: 1/279.206.

when it is to see the second the second the second many it madely to come of and all in the little filled experse of angle in sufferior who we have The state of the s The affection with the war of the same of hat of south the the colour that we had a and sixteriorned theophed affiched " of language les Combins on the arter and the second of the second of the second

3. It's reparate properties. The muriation acid is tronger than any of those of the negetable or animal hingdom but weather than the vitro : olic or nitrouts. It is of a golden colour, & in its most conjentrated tate contains about seven dram of water to one of aird. It is in hout Displated by the action of the sin in pungent white vapors. It arises in distillation also in white fumes which condense on the fides of the recipient in otrice like Shirits of wine. Ho vhecific gravity is to that of Water as 12 to 10. It is the corrosion commonly used for anatomical perpofes. At the affinities with other bodies. 1. Saline. It writes with other deids generating heat. It writes likewife with alhalies with heat & effencescence, though its affinity therewith is less than either the nitrous or votriolie airs. 2. Inflammables. Combined with oils ih produces heat blackness. It maybe made to unite with ardent Spirits but it worth produce atter. 3. Metallic. The early distrolves Line, Iron vloopper. It will likewife dipole Tin though with difficulty, & may be made to untite with most other metals but not in

Sand and Town Horach Sand harry the first the same to be before and the state of the saling of The said of the said of the said

a liquid state. In has a quater attraction to Silver, mercury & heads than any other acid . Agua Regia is composed of the muriatio acid & nitroux acid & may be made by digesting the two deids togethern. This compound is the only menstrateen for Goldo & is the true valvent of Ting Regular of antimony, as the netrous held veparate is 4th Carths. with absorbent larths it forms a liquor that will not enjotallize. with calcarious earths it forms a newbral Salt called fixed Sal ammoniacum. 5. Hater. The muriatio acid unites with water generating heat, but with Ice if produces cold though in a left degree than the nitrous died. 6. The various Names. They are Spiritur Salis, Glaubers Spiritur Salis, The marine Acido, the muniatio Ried VE:

was the same of the same warded the set wide and deapoint leave and der placed and the same in tapention from himes descent cloned to Large of the time from contain 16001 as since The same of the same from the of my first diet in a new trans The state of the s The state from or to A STANDARD TO STANDARD OF THE To sme to fitte periods former when the a nover a condern and but had a adiab terrores wined from properties is called pream

The Vegetable Acido found in the vegetable Kingdom, & is by forthe supposed to be the vitriolie Reid alsorbed & changed by the negetable aconomy. Degetable Acids are of three hinds native distilled and fermented. The native vegetable and is obtained by Come wion from Limes, Granges, Sorrel &c: The distilled vegetable acid is obtained by Distillation from certain Woods as wine Guaiacum de: The aid of pine distilled from Tar or Dry hine droph into watermakes a very elegant Tar water free from the filth & Impyresema of Tarwater made in the common way). The fermented vegetable and is the product of the acctobes formentation; during which trocels Wines, herides growing acid deposit a certain acid walk called Vartar which being purified is called bream or Crystals of Tartar. This acid is different from binegar; hence formented regetable acids are reduced of two hinds viz hectous & tartareous.

sofficer see by trapertial three e de frie fine de alikalis aleas de Chief the wholest bed and the little wind 2. Chemicale popularious historia 1 with the wing that himes any higher pot out the money Terlinish respect hereing in the lister which who who come winds I love in white the broken with intermedia I find to begins the Marriagness on raise abjects they " deparate pooperates secure willing mark washing the sorry to the years of state of the state of the water the bondery on a relieur

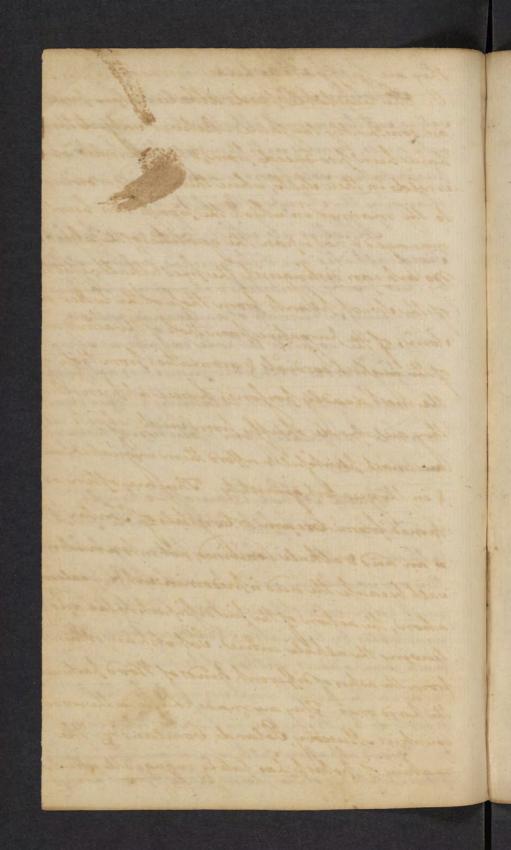
The actour acide combined with negetable fixed alkali forms a newbrail falls voluble both in water ospirit of Kine & with the fofvil fixed alkali abalh nearly vimilar. The tartareous acid is found to be dif. - ferent from the ace tous. Ito newhoal Salk with alkalies is not voluble in Spirit of Kine. 2. Chemical preparations. The native & distilled vegetable and an prepared by the common shethors of expression & distillation for which Su Marguer vol 2. The feromented negetable acid is obtained by a natural process which however may be afoisted by ast. Vinegar is best concentrated by mean of Congellation or exposing it to the frost. For the depuration of Tarton reide Macquar vol 2 p. 274. 3. Separate properties. The vegetable acid is much weaker than any of the minual acids. Its operific gravity is little different from water. M. Homberg varys anounce of but vinegar contains & grains of here acid. "The tartareous acid has the fingular property of orystalizing, which Marquer thinks is owing to the farall quantity of bill last tuhich it contains .

A grant the second and the second second and the second in the second in the second the same of the same of the same I the factor the market was in the Hater of with mile water from Sall to the South of the State La Colonia de Maria de La Caraca and the state of the s slow and as Haid of Amoles Par

4th Consideredo in relation to other bodies . -1. Saline. Vergetable acids will write with the mineral acids, & with alhalies forming newtral 2. Inflammable. They have no affinity with inflammable outstances. 3. Metallic. The regetable and dissolves Tine, eron, Copper, whead, & extracts the brulis quality from Antimony. The steams of Vinegar corros Lead into anhite honder called berufo. 4 th Earths. The regetable dies combines with the absorbent earth storms a litterish liquor Stater. Thunites with water but does not produce any versible degree of heat. 5." various Names. The native negetable acids are commonly called the juice of the intitance as of Limes, Semans, avanges, Norrelo, de: The distilled negetable and is veldom obtained in ascharate viale. The fermented negetable and is called Vinegar, Fistilled Vinegar, Tartar, Cream of Tartar, Coryetals of Tartar & . To the fougoing Reids me may add vandry anomalous ones as while of Amber, Borat, Thorphorus, Ants, Bees be: V: Mag: be Vereman.

Fixed Albertina 1 The state of the state of the have not the one of months Theret Office in the second

Of Alhalies Alhaline Latts are distinguished from all valine outstances not alkalipe by their fervering with arids, forming with them hentral falto, precipitating volutions made infacios, and changing the Syrup of Biolite quen. Alhalies are either fixed or volatile. Tixed ashalis are distinguished from the volatile by their finity, pusibility & changing a folistion of mueun vublimate of an Brange yellow, whereas the volatile alkali exhales a very pungent order voensible fumes & is not faible by reason of its great volatility & throws down a white precipitate from a folistion of mucung oublimate. Tixed Alhalies are of two hinds vegetable and fofish. The negetable fixed alkaline valto are oftained from regetables; they are vometimes called Lixivial Satto because most commonly obtained from the Ashes of vegetables by lixiviation guaporation. The host commodious method of preparing these Salto in the large way veems to be that Directed by Gruckel in his Ar Sitraria. Tixed alhaline talk were originally prepared from the Ashes of the plant Kalli from hence



They are supposed to have received their names. O The vegetable fixed alkalies when pure are constantly the fame, whatever outject they have been produced from, & the differences ob-: vowed in these Salts, where there is arry, is owing to the manner in which the frough has been managed & not upon the qualities of the Subject. no anh can distinguish the fixed he hadinefalts of the sweet plants from those of the liker or Sour; of the purgative from those of the astringent, of the highest cordials & aromaties from those of the most deadly poison; hence at present they are made chiefly from vuch fulgiots as law most plentifully afford them inqualit punity & in the qualest quantity. They have often ob: · tained from loream or Constats of Tantan full is an aid & alkali fombines, not into a neutral walk because the air in presominant by calcin. ation, the action of the fire dissipating the and & leaving the alkali entire. woh Ashaw otherined from the asher of different hinds of Wood particulary the hard ones. They are made whiefly in the woody countries Mundy, Solands, Couland & the making of potast has lately engaged the attention

really. It is defround bound from the Mohing by the Sounds of the to the bone with had of a hat from the state of the first house from the The state of the s

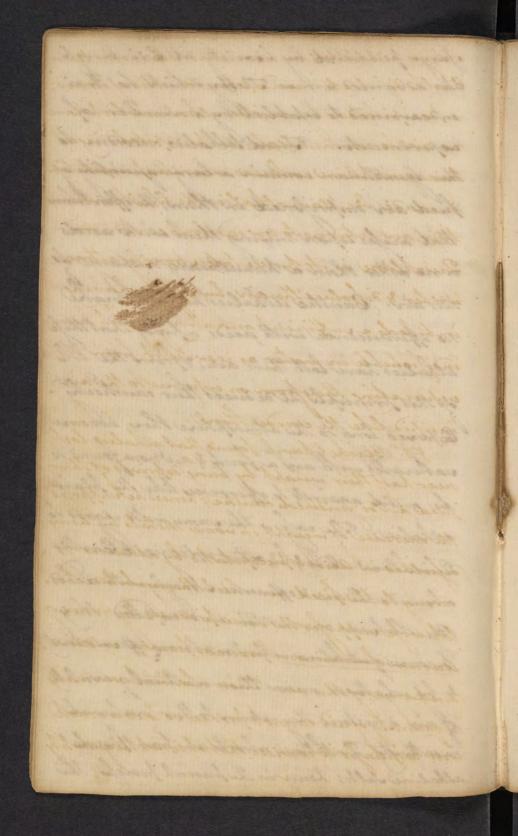
of the Scople of New Englands, & it has now become a real wable commodity with them! Thor the process of making Edashfree ms: The common potast generally contains a quantity of a vibriolates Vantan which is scarce acted upon by cold water; hence the alkali may be reparated from the neutral fall by dif-· volving in colds water. The fofiil fixed Alhali is a fofiil outstance obtained from Seasalt, Boray, & Glauber's Salt. It is Whenife sometimes found pure in the eartern parts of the world & was called Natrum by the anciento. Its properties are nearly the fame with that of the negetable fixed alhali, Differing only informing different neutral falto with airds, not deliquiating in the air but rather imparting its moisture thouto, & capable of being orgutallined Notatile Alkalies are artificial productions, generated by the action of the fire or by putrefaction, I snot befany known hower busides. There falls are generally obtained from animal outstances as containing the greatest quantity. Regetables suring perhepaction generate a quantity of a volatile alkaline fall which may likewife he

and to the state of of head of the state of the Mary and the second and the second Hamphie Charleso Say a Low Mar College Miller and School some White the witnesselve through Delite to the partie some all teleparte Bould with the State of

be obtained from some of them by the action of the fine. of the fine. The volatile alkali is obtained from putris animal futistances especially thrine by a genthe hear, the alkali being already prosenced by the ask of putrefaction; but somethose outstances which have not outered putrepotion no alkali is obtainable without astrony heat, the formation of the alkali when effected by fine alone not taking place till the publich is in a viale of ignition. The alkalis thelf when produced whether by fire or by putrefaction is always of the fame volatility, & when compleatly purified their Identity is the fame whether obtained from the most aired poisonous or boath vome animals, or the most mild innount or inofensive Both fixed & volatile alkalies are either milds or coustie. Alhalies are rendered caustic by means of Quichlime or strong calcination. Some imagin that the quicklime extricates a groß Earth from the Alhali & in the rooms thereof vulitatitutes its own more vulitib & acrimonious matter. D. Black in the physical stiturary

Land to the winds that a Beecher in to the the stand of the state of the his and Equite which are affect to the alkalies have look their air sprond the to his francipal he de duces the construction throws of the my relighteen from you want Coponed long to the almospheric there former and the first con prince be with again & to offering the the plans and company or he may will come with you Show whenever walk The state of the state of the make the montered of the street and from freely and Secretary francisco

esays published by a vociety at Edinburgh has advanced a new Theory which he has endeavoured to establish by a number of experimento. Tixed alkabies according to this Gentleman contain a large quantity of fixed air imprisoned in them; the for seme that arises whom mixing them with acids is no other than a trimulturary discharge of this air. Caustic alkalies he finds make no efervereence with acids, a proof that these alkalies have lost their air; & from the lofe of this principle he deduces their consticity). Exposed long to the atmosphere they become valuated with air a fresh & are none found to be mild again & to effervered like the plain alkalies. The cafe is the vame with regard to Quichlim. Chalk & other calcarious Earths abound with air refervesce hongly with acids. By whatever means this air is expelled they become quickline which makes no effensecence), & by whatever means their natural quantity of air is restored they return to their natural inactivity. Quihlime absorbs air from fixed alkaline Salts; Lence in the pusent proceso, the



Salt is accuated & the lime rendered inorth. When Chalh dissolved in acids, thus divested of its air, is precipitated by caustic alkalies which have no air to communicate, the pricipitate is a true quicklime, whereas when the presipitation is made by plain alkalies the Chalk imbibing their air returns to an indolinhearth. -Quicklime in its pure tate strongly attracts water & dissolves therein, but after having imbiled a sufficient quantity of an it becomes indisoluble in water as is evident from its veparating therefrom on exposure to the air insipio like the erude stone. P. Black likewife Jours that alkalies lost near half their weight by being deprived of their fixed dir or rendered doustic; hence he huppofes the increase of weight in some metals by being dispolved in acids & macipitated by alkalis is owing to the fixed air which they imbile; he likewife wuppofer the noise produced by means of aurum fulminans proceeds from a volden sincharge of this air. Those who think so small a quantity of air cannot produce vo loud a crack will befoliafed to consider that it is not the quantity

the Laston reproper his agreethis fin this Will with hilly to my waterline and his be under praise level the Sain lord deal how the line in the moder line it file in more first of the file former for and It was strott he first windle it hereine and the first of the deather a the death of the printer than the start of the start o alson's expectly first from the the the by testing and hind on Market & But in place of hatphay this says the total graph of hile finis rawhill the with a below who 46 hat be for the down that this well the tree

of maker but the under whring of the partieles, provided they all recover their blasticity abone, that causes so loud a crack. A knowlege of the nature of roperties of fixed air is of speat importance in hilosophy. Throm a knowlege of this we know the relation why causti alkalies to not effervesce with ands, by it we are led to a true knowled of the generation & come of calculi in the human body, for Doctor Halles has fully proved that the human Calculus contains a quat quantity of Rir which venes as a bond of cohesion in its hartiles; home the operation of all Lithontripties or volvents of the Stone is by extricating this air, as Limetoater Soap de: The line in the water being deprived of its fixed air may perhaps pass through the body until it comes in contact with the flow from which it may absorb the fixed air until it becomes valthrated. The caustie alhali in the Soap is rendered capable of being becieved into the body by being combined with the oil, & entering the Stades amay Herhaps be recompounded by the Mrine when the alkali, being in its caustic state, will ach powerfully on the Stone. By knowing that fixed air is the cement

intention of the telephone with for make the on and we can be had the thing so a larger of Com the shifteen lass them a not while the standing of the tenter this first the tenter the of prompty The deficient the instruction of the state of the free to said we will there are her her her have that third great feel remite at with the Somited his by the Land the st. before Sofort & Med gold College & Hoper Harlie Chinaspine an to Land of inthe interior to the of he had hille from the the the the start and the there is the tricked in the will will for while Mill throutist by inchoring that the ideal will fill

or bond of union in the constituent harts of bodies we are thed to a knowlege of the true carely of wherion therein. Most philosophers have supplied that the attraction of cohesion was the fole cause of the volidity of bodies; if so all nature would then um into one coherent mass. The flying of of this fixed air into an elastie tate causes an intestine motion in the partiels of the body, vif asufficered quantity of water be united thebuilt so as to render the body fluid, a change of combination will take place. -How fixed dir can hals from a non repellantly non elastic to a repellant & clastic state & vice versa is not easily concieved; but from undowated experiments we are as certain of its asthat we breather. The nother of this flies ain as well as that of elective atraction was not unknown to that truly comprehensive genius Sir Isaac New ton, & it was by premeing the Links given by this great shan that D! Hales proceeded his enquiries ofound by underiable experiments that air was the daule of coherion in all bodies whether vegetable or animal. Haller likewife cays that air is the vinculum or bond of union in the particles of all bodies. Tixed air may be

While forthered whereing 2 confidence to view allest in the Whater United the thinking which this has rainly to the the the best will no Martin Halfolis called a shalling Thomas ing select of the de will and of the de their projection of subscholations will another to it institution former you wisher There The room to retert to the the had a confidence grand which that it had a proceeded - hit wheele we follow before down the aspeculiarily "a! il Inthemental willing the state of the hiter way little the start of Haller life to the Anison the Samuel and And And Granish in the land the for his reflect or the the relation of the the

transferredo from a body in which it is, into a body deprived of Mas is evident from the curious & rescisive experiment of M. Bride. Alhalies considered in their relation to other bodies. 1. Saline. They units with acids, if in a mild state with efferverence, but if in acaustic state nithout, sprosur different neutral falls according to the nature of the aird & alhali employed. Tixed Mhalier readily ony talline with any of the mineral airs & with Tarlar, with which they compose a neutral dall much easier of volation than the Tortan itself theme called voluble Tartar. They do not eavily enjetallire with he and of Bryan or Lamon Juice; Then mitheus if by careful management would to a conjutalline form voon deliquiate in the air again. The volatile alkalies form with acids vemivolatile concretes called ammoniacal falls which readily enjutallize on sue evaporation. 2. Inflammable. Alhalies with with oils in a courtie State forming South, with Sulphun forming Hepar Supheris; added to andent Spinh They absort the phlegmatic hash & their under them

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them more concentrated. Volatil alkalis with ardent Spirito form a coaqueum. They extracts the odoriberous parties of efountial oils otherw form the Sal volatile sleasurn. 3. Metallie. Alhaline Salts render metals fundle, & in accounting take ash powerfully on the ealers of metals. He par Sulpheris may be make to units with all metals even Gold believen. 4th Earthy. Some with our rendered intrificiable lif meam of athalies. water; they bighten the colour of animal & regetable tincherer whether or own with water Parspirits, but they commonly vary the taster & often debase themell of the preparation. They Pipole animal & ugetable consultains & from therew depends the art of Bleaching. They chech fermentation. Their Names. Alhaline della have recieved various names from the different bodies from which they are oftained, the different method of obtaining them.

from the sold was the starting this while is the said and the second second second second second the second of march a state of the with the transfer the Windows of Brief it were 4 Brother store and in Life has been a problem as Bearing your Superior was not been been been to of his he barre the mand of higher him The hard conversed of only hall in grandered by they what firmery have and with the symphetical and the said of the said the last of the best of the Con The plant of the te

